NOVEMBER

Industrial FINISHING

Published Monthly in the Interest of Modern Protective Painting

TECHNOLOGY DEPT!

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DETROIT

ese gasoline pumps, and thousands of them in this country annually

are finished with

LILLY'S SYNTHETIC BAKING ENAMELS

The finish on gasoline pumps is subjected to about as severe a test as a finish could be . . . besides continual outside exposure it must withstand splashes of gasoline and the bumping of water cans, oil racks, tools, etc. All of which indicates that LILLY'S SYNTHETIC BAKING ENAMELS *can take it.* Why not let them protect your product, too?

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RINCONTROL answers these common Wrinkle Finish complaints:

1. Costly rejections due to non-uniformity.
2. Uncertain performance.
3. Great dependence on skill of operator.
4. Bodying or "livering" in container.
5. Frequent need for re-finishing.
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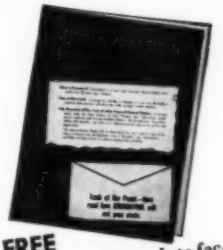
RINCONTROL incorporates features not found in any other wrinkle finish. For example, it's always "fresh paint" due to adding Rincontroller just prior to use. Result—no bodying or "livering" in the can! No formation of "skin" in partly filled containers! What's more, Rincontrol's exclusive formulation insures greater stability. Appearance is uniform . . . regardless of operator's skill or type of metal! Rejections reduced to minimum!



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A FINISH TO MEET EVERY PRODUCTION REQUIREMENT

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for wood furniture finishes

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Reduced handling and processing cost.

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and the "knockabout test"

Zapon Lacquer Enamel XE-606-A is flexible, of course; even under severe stresses, crushing and exposure to extremes of temperature. But, there are other important qualities in this lacquer enamel.

An effective test for chipping, adhesion, and flexibility of a lacquer enamel is to bang together vigorously a number of finished pieces in a bag. The container caps pictured above were given this test. They stood up beautifully under rough treatment, because they were coated with XE-606-A.

Gloss and hiding power of XE-606-A are excellent. This enamel may be thinned 40% and still provide a film thickness suitable for nearly all applications. These qualities and XE-606-A's range of colors have made it extremely popular with manufacturers of cosmetics, toiletry containers, and hundreds of other metal products requiring a durable finish.

Container caps made for Ralph W. Wilson Co. by Winchester Repeating Arms Co.

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ATLAS POWDER COMPANY
Stamford, Conn.

ZAPON

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ZAPON-BREVOLITE DIVISION
ATLAS POWDER COMPANY
North Chicago, Ill.

INDUSTRIAL FINISHES

Tech

Beginning Its 17th Year of Publication

Industrial FINISHING

Reg. U. S. Pat. Office

Published Monthly in the Interest of Modern Production Finishing

Vol. XVII, No. 1 **NOVEMBER, 1940** **$2.00 a Year**

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Letters from Readers

OF INDUSTRIAL FINISHING

These letters (and many others) were answered recently by the editorial department, but are published here to reveal certain interesting trends of desire and activity in the industry, and to encourage additional inquiries, comments and suggestions. Further information about any of them can be obtained by writing this office.—Editor.

"Knife Coating" Machine

In your July issue, page 29, you show a cut of a knife coating machine. Would appreciate your supplying the name of the manufacturer of the machine, as we would like to correspond with them about it.—M. Co. (Decals.).

We believe that the manufacturer is John Waldron Corp., New Brunswick, N. J.—ED.

Luminous Paint Again

We are interested in contacting a manufacturer or source of supply for luminous paints, pastes or pigments. It is necessary that we secure something which has the glossiest brilliancy, and will appreciate your giving us a list of a few manufacturers of this particular material.—M. F. Co. (Markers).

We note the request for information on "Reflectorizing Paint", on page 6 of the Sept. issue of INDUSTRIAL FINISHING. We are wondering if, when this information is received, you would send it along to us, as we too are interested in learning information regarding paint of this type.—R. E. Co. (Electrical Equipment).

Masking Paste

On page 4 of your Sept. issue, we note the information relative to "Hardware Masks" and, being interested in masking, we write to ask you if you will kindly send us the names of the manufacturers of this material, as per your offer.—S. S. Co. (Metal Displays).

Sandpaper Holder

Please refer us to a source of supply for small flexible holders for sandpaper to be used for hand sanding small metal panels, if such a product is available. You might refer this inquiry to one or two possible suppliers, with a request that they forward for the writer's attention descriptive literature and price information covering the above.—4/C. (Chemicals).

Heat-Resisting Lacquer

Kindly send us the names and addresses of manufacturers making heat and alcohol-resisting lacquer capable of resisting 500° of heat. You often gives these names in your books, but we have mislaid them.—W. P. Co. (Nameplates).

Waterproof Finish

Will you kindly furnish us with the name of a manufacturer from whom we may obtain a completely waterproof finish? This finish, to be applied to wood, may go on directly or over a priming coat, as necessary. In addition to its waterproof qualities, the finish must have a considerable degree of flexibility and toughness. Al-

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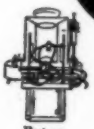
TWO OF THESE MACHINES PAID FOR THEMSELVES IN HALF A YEAR



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Pipe Coating

Horizontal Transverse

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● It's no mystery—it's DeVilbiss Automatic Spraying. These two machines paint 1,500 automobile hub and brake drum assemblies an hour.

What's Your Product? You may have a finishing or coating operation that DeVilbiss Automatic Spray Equipment can perform with equally profitable results. For among the standard DeVilbiss machines you'll find designs that can be adapted to any spray material on products of almost any size or shape—and do it better, faster, more economically.

Brake Drums or Lamp Shades? DeVilbiss Spray Machines automatically paint 200 feet of pipe a minute—spray 1,200 upholstery pads an hour—finish 3,500 fan parts an hour—tint 1,200 lamp shades an hour. But if you can't use automatic machines, take advantage of the speed and economy of new, modern DeVilbiss hand equipment.

Ask your DeVilbiss representative to show you how you can reduce your finishing and coating costs. Get in touch with him, today.

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DEVILBISS SPRAY SYSTEMS

FORM - A - ROC

We offer to all industries equipped for baking finishes this highly perfected, heat-converting, synthetic enamel.

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We have combined to an optimum degree the necessary qualities of tremendous hardness, great adhesion, smooth lustrous gloss, and freedom from haze, discoloration and wrinkling.

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Baking schedule is of great flexibility, permitting from 5 - 50 minutes at 250 - 375° F.

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No matter which of the present worthy finishes of this type you may be using or planning to use we sincerely recommend that you investigate

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THE VARNISH PRODUCTS CO.

5288 Harvard Avenue

CLEVELAND, O.

though an air-dry material would be preferable, infra-red baking could be given, if desired.—A. Electrical Co.

Mixer Can't Be Stalled

In the Oct. issue of industrial Finishing, on page 77, we note an inquiry regarding a paint mixer for use with reclaimed enamel pigments. We manufacture a mixer that is essentially a drum-rotating device and we believe it would be quite successful in mixing material of this type. It, of course, could not be stalled and the only question would be the length of time required to dissolve the heavy material. —The Brown-Fayro Co.

Who Makes "Fluracite"?

Kindly furnish us with the name of the manufacturer of "Fluracite," a high-baking white enamel. Also, if possible, have local representative call on us at his earliest convenience. —D. Mfg. Co. (Electrical).

Can you advise us who manufactures "Fluracite"? This material is supposed to be used on reflectors as a baking enamel of some type.—P. L. Co.

Lacquer for Tropics

Please let me know if you have a branch in Canada. I want to import some lacquer from the DuPont affiliation in Canada. I don't know if their local agents will allow me to do so.

In the meantime, could you recommend a lacquer that will stand up in the tropics—one that I can import from Canada?—Mr. X., Kingston, Jamica B. W. I.

We have no branch in Canada. Several companies advertising INDUSTRIAL FINISHING manufacture lacquers that will probably be suitable for service in the tropics. We suggest you write directly to manufacturers in the U. S. A.—ED.

Rollers for Coating

We wish to build a roller coating machine for coating small pieces of wood with lacquer, and wonder if you can give us any information as to the kind of material to use for making the rolls?

We would like to use a soft rubber-like roll which would not be affected by the lacquer. Any information you

Doing any bleaching? **TRY**

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AMERICA'S FINEST BLEACH

Single Application! Powerful!
Odorless! Positive!
No residue! GUARANTEED!

V. J. DOLAN & CO., INC.
"Unquestionable Quality" Industrial Finishes
1030 NORTH LARAMIE AVENUE CHICAGO, ILLINOIS

may have in your files on the general subject of roller coating, we would be pleased to receive.—T. F. Co.

We do not have nor furnish formulas for making rollers for coating machines, as they can be purchased from reputable concerns who will make them up to meet your specifications and requirements.—ED.

Spray Booth Coating

We are interested in an inexpensive, non-inflammable spray booth coating that can be sprayed or brushed on the spray booth walls and floor to help keep them clean. — E. M. Co. (Metal Finishing).

Information furnished.—ED.

That Stencil Job

In checking over Sept., 1940, issue, we notice, on page 56, that "P. H.," a foreman finisher, is having some difficulty in stenciling the designs indicated. It is our thought that possibly a rocker-mounted stamp would solve this problem. We would appreciate hearing from you with any information you may care to offer, giving us an opportunity to quote on this type of work.—Jos. H. Matthews & Co. (Dies, Stamps, etc.).

Masking Paste

We have read your magazine of Sept., 1940, page 4, and are interested in the article entitled, "Hardware Masks." Will you kindly let us have the names and addresses of manufacturers, who make masking paste or liquid rubber compounds, such as "Kelsanite"?—C. S. Co. (Steel Enameled Table Tops).

In Semarang Java, Too

Your supposition that your excellent magazine is carefully read at this end is correct.

We need a remover in paste-form to remove paint, varnish, enamel, lacquer or shellac from wood, metal or canvas, and we sincerely hope we are not trespassing too much in further asking you to persuade a reputable company in the U. S. A. to send us, by watermail, a pint-sample of paste remover suitable for removing old

UNI-VEN

A ONE COAT LOW COST VENETIAN BLIND FINISH

UNI-VEN has set a new standard of efficiency in the Venetian Blind industry. UNI-VEN has proven itself in production use by leading V. B. manufacturers.

UNI-VEN is a roller coating synthetic enamel that has excellent flow, quick drying, remarkable color retention.

United Products give dependable performance at low cost.

Further information and working samples will be gladly furnished on request.

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THINNERS
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METALIZED FINISHES
SYNTHETICS

UNITED LACQUER MFG. CORP.

General Offices and Factory: Linden, New Jersey

lacquers from metal and canvas, together with their lowest f.a.s. New York quotation covering this paste-remover packed in drums of 10 gallons net. Materials packed in containers weighing less than 30 kilos gross are subject, in our territory, to an import duty of 18% of the C. I. F. value. Containers weighing over 30 kilos gross, however, are doing 8% only. It goes without saying that our orders will always be paid "cash" in New York.—L. K. H., Semarang, Java, N. E. I.

Heat-Resistant Black Enamel

As a subscriber to INDUSTRIAL FINISHING Magazine, we have been following the Assistant's Column for Readers, and we have a question we feel you might be able to answer. In our product, we are having some trouble on the range frame not being resistant enough to high temperature, which is acquired periodically. At a point above our broiler we are using a high-temperature black baking japan, which we are spraying on at the present time.

We would appreciate hearing from you, giving your recommendation in regard to a high-grade black enamel which would be resistant to high heat, and the names of firms able to supply this high grade product.—D. R. Co. (Heating Equipment).

Fireproof Lacquer

Please send us the names and addresses of manufacturers of fireproof lacquer.—G. C. Co. (Furniture).

We don't believe there is such a lacquer; however, we are sending you the names and addresses of several manufacturers of fire-resistant lacquer.—ED.

Offers Dipping Machine

We saw an inquiry signed by "G. N. Co." in the Sept. issue of INDUSTRIAL FINISHING Magazine, (page 6) for manufacturers of dipping machines. As we have a dipping machine we would like to sell, we would be glad to get the name of this concern or of anyone else interested in buying a dipping machine.—W. N. G. Co. (Novelty Turnings).

Wants "Woodlife"

We would appreciate your advising us from whom we may purchase a trial order of the product "Woodlife," referred to in Sept. issue of your magazine (page 10).—M. C. Co. (Wood Caskets).

It's Protection Products Mfg. Co., Kalamazoo, Mich.—ED.

Striping Tools Wanted

I would appreciate it very much if you could send me information or names of companies furnishing a multiple striping machine to be used for scoring tile board. If you can, try locating a company in the neighborhood of Chicago.—A. A.

Will you please advise us where we can secure a good production striping gun of the wheel type. We will appreciate any information you can supply us on this.—M. Mfg. Co. (Display Fixtures).

We are desirous of getting stripers, and believe we saw the advertisement in INDUSTRIAL FINISHING, although we have been unable to find that particular issue. Will you please advise where we might obtain this particular instrument?—A. M. Co. (Modern Art Metal).

Will you please advise us where we can procure equipment for making two parallel stripes, each stripe approximately 1/16-in. in width? Any information which you can give us as to such equipment will be greatly appreciated.—C. Furn. Co.

Information supplied.—ED.

Alcohol-Proof Enamel

Would you kindly send me any information you may have on a baking enamel (not ceramic) which, when baked on brass, will resist the action of perfumes or alcohols? All types procurable here (Calif.) soften within a very short time.—V. Y.

Masking Chair Arms

In your Oct. issue you have an article entitled "Decoration of Chairs by Masking". We would like to mask the arms of our rocker and have the rest of the chair jet black. We are enclosing a cut of our chair and wish you would send it to whoever is mak-

PRODUCTION

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PRIMER

For streamline speed

- Air dries in 20 min.—Can be force-dried or baked.
- Forms perfect bond for lacquers or synthetics—no lifting.
- Excellent adhesion to all metals and die cast parts.
- Resists moisture penetration and salt spray tests.
- Supplied in different colors to suit your needs.

Will Finish Your Product or Supply Sample for Your Tests.

H. V. WALKER CO.

MODERN PRODUCTION FINISHES

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QUALITY

is worth what it costs

Users of CLAREMONT FLOCKS get **quality** — superior and dependable. Articles coated with CLAREMONT FLOCKS reflect their quality and carry sales appeal, with increased profits.

Step up the quality and appearance of your product with

CLAREMONT FLOCKS

COTTON—WOOL—RAYON

White and Brilliant Colors

Ask for color card and samples.

CLAREMONT WASTE MFG. CO.

CLAREMONT, N. H.

The country's leading makers

ing this mask material and ask them to figure on the proper masking material for covering these two arms, and what the approximate cost would be.—S. O. (Windsor Chairs.)

"We are very glad to have you know that we have sold more than 200 burning-in knives from the publication you gave us. We have, since the publication, registered the knife under the name of Electro-Knife."—Finishine Laboratories.

Controlled Finish Drying

I believe there appeared in your Oct., 1939, issue of INDUSTRIAL FINISHING, an article by C. O. Judd, entitled "Controlled Finish Drying." Will you please forward a copy of this number of the magazine, as I am very much interested in this article. —W. D. F. (Director of Engineering).

Remember, readers, hold onto your copies of INDUSTRIAL FINISHING. They are valuable for frequent future reference. Our back numbers soon become exhausted.—ED.

Flameproofing Compound

We are desirous of purchasing flame-proofing compound as per your recent write-up about "Ignex." We would appreciate your sending us the address of the firm that manufactures this item. — A. Mfg. Co. (Window Shades).

It's a product of the Laboratory Equipment Co., 148 Lafayette St., New York, N. Y.—ED.

Wants to Be Foreman

A subject that has been a constant source of mystery to me, deals with an article I read in the Jan. 1940 issue of INDUSTRIAL FINISHING—the editorial entitled: "Our New Foreman Finishers; Where Will We Get Them?"

I was one of the vast army of young men who experienced the trying years of the depression, when jobs of any kind were few and far between. Like many other young men I had no special training. The only alternative, in my case, was to take the first job that came along. This turned out to be a job in the finishing department of a furniture plant in my home town at very small wages.

About 3½ years of being shuffled from one operation to another, from

(Continued on page 77)

87% IS SEEING

You see the wood.

You see the design.

But above all you see the finish itself—and that finish sells (or doesn't sell) your product.

Stille-Young finishes sell – for you.

And an inquiry will bring immediate attention and practical service.

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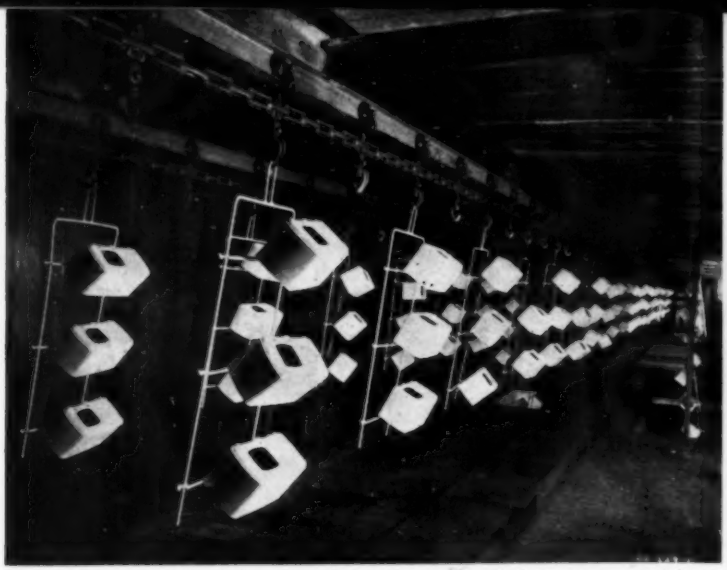


Interior of new oven. Loaded conveyor line comes up through floor opening at right, makes a circuit of oven chamber and drops below through another opening at left.

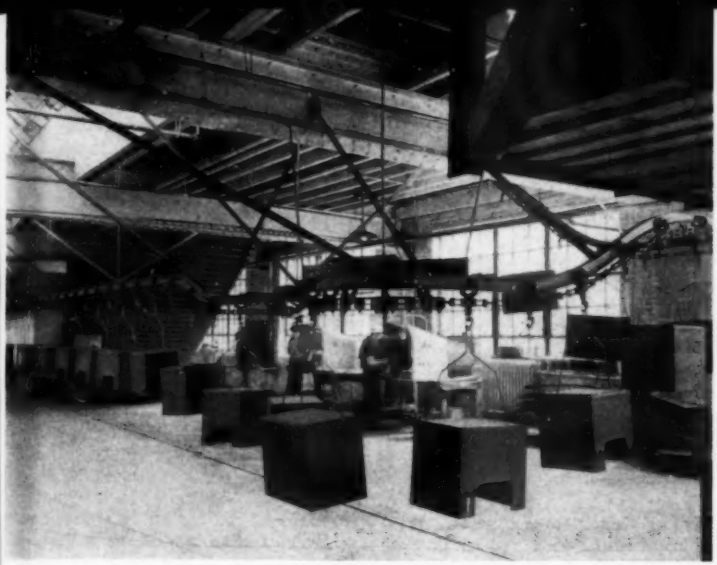
The De Foe Company Finds

MODERNIZATION of production facilities in the plant of De Foe Finishing Co., Chicago, Ill., has within three months after installation, brought significant results in several directions. Outlining these accomplishments, Edward G. De Foe, company president, stated that plant capacity has been tripled and a wider variety of products is being handled than previous facilities permitted.

At the same time the uptodate equipment has lowered production costs and made possible better workmanship, thus enabling patrons of the De Foe finishing service to get a higher quality finish.

The increased volume of business, which quickly followed the improvements, has brought the company face to face with the urgent need for plant expansion very shortly, Mr. De Foe said, adding that plans for an addition to the factory are already being drafted.

Improvements completed last summer include construction of a new bake oven 106-ft. long, and installation of a new hydro-filter spray booth, together with a continuous automatic overhead trolley conveyor 500-ft. long, linking the booth on the ground floor with the oven on the roof. Further improvements, for which plans have all



Continuous automatic conveyor handles large or small objects. Here a load of stoker housings is shown descending from oven for inspection before removal for repacking.

Modernization Profitable

Photographs furnished through courtesy of The R. C. Mahon Co. who installed the equipment.

BY H. H. SLAWSON

been completed, include new washing equipment and a fresh air supply system for the spray room.

The big advantage of the modernized production line, Mr. De Foe points out, is the fact that, once a product has been placed on the conveyor, no further manual handling is required until it has made the complete circuit through spray booth and oven and is delivered back to the ground floor for inspection prior to packing for shipment to the customer.

The complete finishing system was designed and installed by a large well known concern that specializes in this work. The De Foe company performs a specialized industrial finishing service for manufacturers in Chicago and within a 200-mile radius of that city. Demand is made daily for the handling of an infinite variety of metal and plastic products of all sizes, shapes and weights. These range from large beverage-dispensing cabinets through radios, phonographs, stoves, stoker housings, office furniture, adding ma-

chines, typewriters, vacuum cleaners, automobile parts, lamps and tiny ash trays.

So that nothing might be left to chance, the company that designed and installed the equipment devoted much time and study to the particular engineering problems created by this array, prior to actual erection of the new finishing facilities. The result, De Foe company executives assert, makes their plant the largest industrial finishing establishment, with the most complete and modern equipment and methods, in the Chicago area.

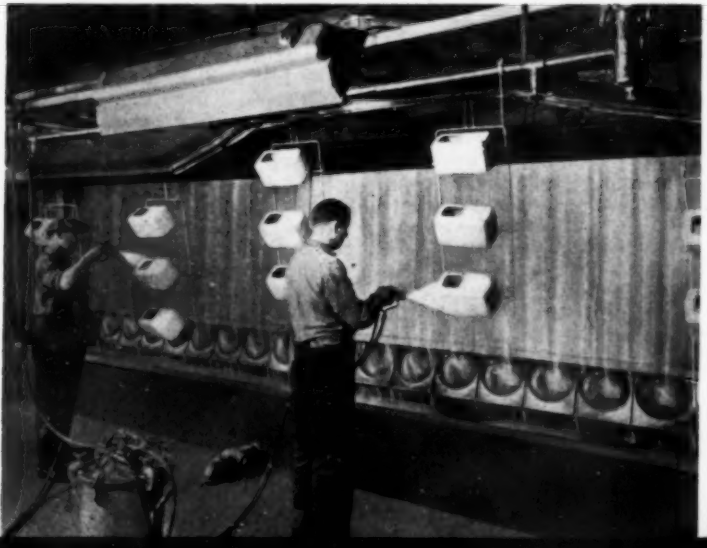
Prior to the changes 35 gas-fired box or truck ovens were used, which meant much re-handling of products during finishing operations, together with constant watch of temperature conditions, always with the possibility of human error present. The new completely automatic oven enabled the management to discard some ten of these older style ovens, yet, at the same time, increase capacity three-fold and provide the absolute certainty of automatic temperature control with other refinements.

The Bake-Finishing Oven

"Selection of a site for the oven was one of the first problems confronting us," Mr. De Foe related. "Estimates of our needs called for an oven 106-ft. long, 12-ft. wide and 9-ft. high. Floor space in the factory was already taxed to capacity and it looked as if we would have to make an investment for additional land and a new building.

"At the rear of our main 3-story plant, however, is a one-story extension with its roof supported by

At the water-wash spray booth where articles hang on racks suspended from an overhead conveyor that moves the work past the zone of operations. Notice hump in conveyor rail.

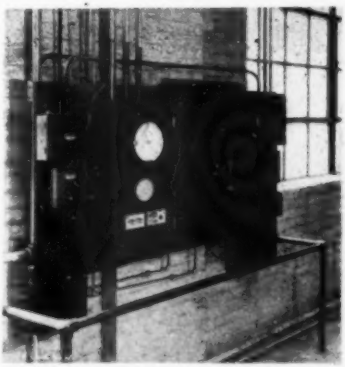


heavy steel I-beams. Tests proved that this structure would be sufficiently strong to support the weight of the oven, whose walls and roof are made of interlocking steel sheets of ribbed panel construction. The oven, therefore, occupies space that would not otherwise be utilized; nor is any auxiliary housing required for the oven, since a 5-in. layer of rock wool insulation prevents outdoor weather conditions from influencing oven temperature, while guarding as well against loss of heat outward."

The heater unit, fans and motors for operating the oven are sheltered in an equipment house adjacent to the oven. Gas is the fuel used, as it has been for 35 years. The four burners on the heater, which can be used singly or in combination, have a heating capacity of 1,000,000-B.t.u. per hour, sufficient to produce temperatures up to 450°F.

Before entering the heating chamber, air is filtered to remove dust and other foreign matter and, after being raised to the desired temperature, it is delivered into the oven by a centrifugal fan. Circulating swiftly through the long oven, it provides an even heat to every corner. A large part of the air is then drawn back to the heater for re-heating and re-circulation. This re-circulating feature results in considerable reduction in gas consumption over what would be required if fresh, outside air had to be raised to the desired temperature level for each air change in the oven. Once the thermostatic temperature controls are set the heat can be held with a variation of seldom more than 5° from the determined point.

On the ground floor an electronic control board, assembled to meet the particular requirements of this installation, automatically controls the heater on the roof and is ready to give instant warning should any failure, such as a fuse blow-out or stoppage of gas flow, occur.



The electronic control panel on main floor closely regulates all oven operations.

In the morning, when operations begin, a flick of a switch starts the oven's supply and exhaust fans which operate for five minutes to clear from the oven any volatiles that may have collected there over night, thus insuring safety against explosion hazards. Through a set of flow switches a time delay unit is automatically put in operation.

On the control panel a pilot light indicates when the fans have started and a second pilot light indicates when the time cycle has elapsed. Then, and not until then, it is possible to ignite the gas burners through a push button on the panel. A spark plug first ignites the gas pilot which, in turn, lights the main gas burners mounted in the heater.

Meanwhile, in the shop, the product to be finished has been un-

No space being available inside the building, the oven was placed outside, on the roof.

packed in the receiving room, has been sent through the degreasing or solvent vapor bath and returned to the floor where girls place it on the overhead trolley conveyor that travels continuously along the production line. This conveyor is a single strand of drop-forged steel chain suspended at intervals by ball-bearing trolleys from an I-beam track. It is designed to pass around abrupt turns in the horizontal plane and to climb in gradual vertical curves to the penthouse oven; then, after circling through that, it descends to the ground floor starting point.

This multi-plane operation, conveyor engineers point out, permits the load to reach the roof without transfer, and to travel through the shop overhead and out of the way, except at points where the load must be reached from ground level. Thus valuable floor space is freed for other use, and products on the conveyor line are removed from the hazard of any scratching or abrasion in transit.

At intervals of 2-ft. on the steel chain belt are swiviled hooks to which are suspended racks or hangers supporting the product involved in the finishing operation. Specially designed to accommodate the varying sizes and shapes of articles handled, each rack will hold either a single large piece, such as a stoker housing, or a number of small items. Both conveyor capacity and oven heat can thus be utilized to greatest advantage, and articles can be finished either individually or in batches.

Hydro-Filter Spray Booth

From the loading point the conveyor carries the racked products around a turn to the new hydro-filter or water-wash spray booth. This spray booth (20-ft. long by 8-ft. high) is large enough to accommodate three spray operators at one time. Forming its back wall is a metal plate over which a thin sheet of water flows continuously and is re-circulated to reduce water costs. As the spray

operator directs his jet of liquid enamel or lacquer onto the product suspended from the moving conveyor, the over-spray strikes the water curtain and is deposited in a trough at its base, to be skimmed off and collected for disposal later. When one color is being used in considerable volume it is thereby possible to salvage a portion of what would otherwise be wasted paint.

At the same time fumes from the spray are sucked into ducts at the base of the back panel and are carried to the roof for discharge. Operators are reported to like this spray booth because it eliminates the need for a "gas mask" or nose respirator, and they can work with greater ease and freedom.

Noteworthy here is the "hump" in the conveyor rail which is contrived so as to lift the product on the rack to a height where its lower side can be conveniently reached for spraying; then drops it for similar treatment of its upper side by the operator standing on the floor. The swiveled hook holding the rack permits the product to be swung around so that all sides can be sprayed.

Leaving the hydro-filter spray booth, the loaded conveyor immediately begins its gradual climb to the oven on the roof. There, after passing down one side of the heated chamber and back on the other, the conveyor slips in an easy grade down to the ground floor.

Speed of the conveyor depends on the time required for baking or drying in the oven. Since some finishes require more time than others, speed limits vary from about 2-ft. to 5½-ft. per minute. Between these limits the precise time for baking any particular finish to the correct degree of hardness can be allowed for.

Since each piece in the oven receives identical heat treatment, every article in any batch will come out with exactly the same finish and shade of coloring. The continuous automatic progress of the long conveyor lines has still another advantage, in that no time is lost in stocking the oven. Each instant one loaded rack with its completely baked product leaves at the oven's outlet another rack loaded with new work takes its place at the entrance.

Along the entire production line all other operations throughout the shop have to be synchronized with the oven speed, but both the girls who load and unload the racks and the spray operators at the water-wash booth have ample time to complete their tasks. If necessary, however, when the line is moving at the higher speeds, one operator can spray only one side of the product and, as the line travels onward, the next operator

(Continued on page 76)

Two small spray booths are available also.

I consider myself well versed on the subject "Production Striping," as I have been in contact with various industries relative to their painting problems, and naturally striping has been the most important. I don't have to tell you that striping has been the stumbling block of most manufactured items. It would appear that I am trying to sell you a mechanical striper, but the point is that I am sincere when I say that thousands of industries are confronted with a difficult problem of striping their products accurately and economically. As you know in most cases, each industry has a special problem for each item they manufacture—

Everett Damon

Production Striping CAN BE

THE PURPOSE of this article is to assure readers of INDUSTRIAL FINISHING that production striping can be done accurately and economically. Individual problems will be taken up later in this article, which will be of benefit to those who wish to add some "sales appeal" to their products.

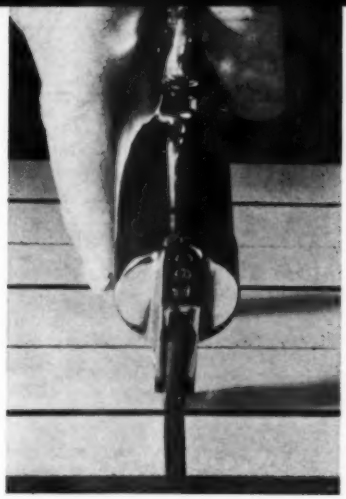
In the past seven years I have been instrumental in helping hundreds of industries solve their striping problems—or I should say, I have proved to them that striping can be done economically and at the same time give their products that extra finishing touch. Most of these industries had not been striping because it proved too costly, yet they knew their products needed striping. As competition becomes keener in every field, the finishing foreman has to find ways and means of making his finished product look just a little better than his competitors'. And, as you will agree, a perfect stripe is the answer.

Useful on Many Products

The following are some of the industries I have called on and every one of them welcomed any suggestion I might have: Manufacturers of imitation tile, furniture, store fixtures, picture frames, wooden novelties, toys, metal and plastic hardware, metal moldings, automobiles, buses, trucks, street cars, railway coaches, laundry machines, baking ovens, safes, elevators, signs, bumpers, tennis rackets, boats, fabrics, and many other products too numerous to mention. I have named the various types of industries I have called on in the hope that every reader may find his type of industry listed.

Before I treat any individual problem, I would like to discuss

BY EVERETT DAMON



Close-up view of striper head, showing convex wheel striping a curved routing. Photograph, courtesy of the Beugler Mfg. Company.

DECORATIVE AND ECONOMICAL

striping in general, its advantages and disadvantages, which some of you already know or have never had the time to analyze. Those who have had striping to do will readily agree that it is one of the biggest problems in the finishing room.

Sloppy Inaccurate Stripes by Unskilled Brush Stripers

Most finishing foremen want to stripe their products, but their past experience in the cost of striping and the danger of inaccurate striping was far from encouraging and the result was that the finished article usually came through "naked" as far as any stripes were concerned. Everyone will agree that unless striping is done accurately, its purpose is defeated.

I have seen articles go through the complete production line and come out flawless, lacking only the application of the stripe; and then I have witnessed "murder in the finishing room" by a man with a striping brush in his hand, who might just as well have taken his knife and gouged the finish with fiendish glee. It is criminal to degrade a beautifully finished article with a sloppy stripe. Naturally, in this case, the stripe had to be removed and with it usually came the top coat. You can readily see that this striping error is rather costly.

In most cases, I don't blame the man with the striping brush, for a very good reason. He has been either spraying or sanding and then is required to pick up a brush and produce a perfect stripe, which is impossigle. I have talked to old-timers who used to stripe in the carriage days and they wouldn't dare use their striping

hand for anything but striping. In this day and age, the man who stripes has to put in his 40 hours, and in most factories striping is not a full-time job.

Well Placed Clean-Cut Stripes Add Sales Appeal

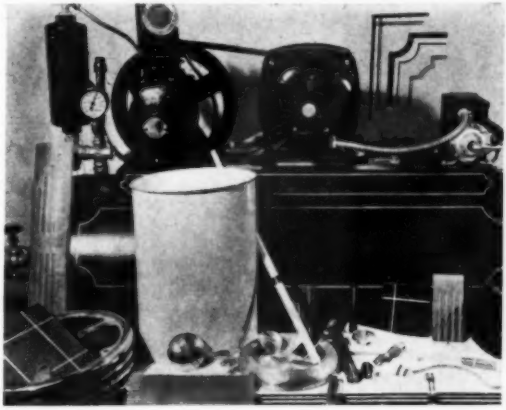
In another factory their main item was low-priced furniture. Their goal was to put out attractive merchandise in spite of price handicap. The painted finish was strictly mediocre, but with the application of a perfect stripe the results were more than satisfactory. The stripe gave the articles a richer appearance, and at the same time the observer overlooked the fact that the surface was not as well filled or sanded as the more expensive furniture. A good maxim for striping is: "An accurate stripe makes a fair paint job good and a good paint job perfect, while a poor stripe reduces a good paint job to almost an unsalable article."

Every finishing foreman with whom I have come in contact heartily agrees with me as to the causes and effects of good or poor striping, but he wants to know how he can get accurate striping done economically. He tells me that men and women who are experts at free-hand striping are as scarce as horse-drawn carriages. And with the passing of the carriages, went the art of free-hand striping. Those few who still practice the "lost art" are in great demand in the automotive industry. Naturally, skillful hand striping would be too costly for the average industry whose products are so highly competitive. So "what to do?"

Best Mechanical Stripers Perform Perfectly

The solution, in nine cases out of ten, is to use mechanical stripers. Now about half of you read-

View in Wall Board Division of the O'Connor Electro Plating Corp., Los Angeles, Calif.



A few of the thousands of various articles that are striped with a mechanical striper —each with its own little problem. Some of the stripes do not show clearly in this picture because of the colors used. Photo., courtesy of Beugler Mfg. Co.

ers who were interested in my article up to this point are probably saying: "Nuts, I tried one and it didn't work. It dripped, clogged, made a snaky line, etc." In justice to the mechanical striper industry I want to say that there are only a handful of concerns who make a specialty of designing stripers yet, on the market there are dozens of stripers which have all the outward appearances of a quality tool in design, and price. They claim to do everything any other tool will do yet they are far from being precision tools. In other words, a 10-cent fountain pen looks just as good as a $10.00 pen, but its performance will show the difference.

Other readers will say that their striping problem couldn't be solved with a mechanical striper even if it did work, because . . . . When you get to that word "because" you are making a direct challenge to the mechanical striper industry. In nearly every case your striping problem is no problem to those few manufacturers who make it their business to design special wheels and stripers for your particular requirements. Write them; send a sample of the article to be striped; give them full particulars; if their standard wheels wont answer the purpose they will make one that will.

Just because I mentioned that in nine out of ten cases the mechanical striper industry can solve your problem, don't think that your case is the tenth. The industries I called on all felt that their problem couldn't be handled, yet nine out of ten of them are using mechanical stripers today.

Striping Imitation Tile

Each individual striping problem should be treated as such, and full particulars are necessary. The following individual striping problem is found in the imitation tile industry. In this case you will find several reasons, other than appearance for striping. I chose the imitation tile industry as the first to discuss because of its ever-growing popularity in the showcase and store fixture industry, as well as in

the home, in kitchens and bath rooms.

Here is a case where an inaccurate stripe is extremely costly. Where you have approximately 262 linear feet of vertical and horizontal stripe in a 4x12-ft. board, an inaccurate stripe is very conspicuous by its inconsistency, and usually this calls for the sanding and refinishing of the final coat and a restriping job. You can readily see how costly this error is, even in a production line where spray equipment and ovens are at hand. But where it really hurts is when the tile board contractor buys the boards completely finished excepting the stripe and, in striping on the job, runs into difficulties.

I might mention at this time that in using mechanical stripers, it is imperative that they be so constructed that they will operate in vertical or overhead positions. The gravity stripers are not practical for wall and ceiling work.

Requires Wheels to Fit Grooves

Striping wall tile is a simple matter for a mechanical striper with the proper size and shape of wheels made to follow the various contours of the scoring or grooves in the tile board. I have seen seven different manufactured boards, and the size of stripes vary from 1/16-in. to ⅝-in. The contour of the scoring or grooving is far from standard, ranging from rounded concave and square channels to V-shaped grooves. Here is a case where your mechanical striper manufacturers require a sample of your tile board in order that they can design the proper wheels for the job.

Many wall tile companies originally had trouble with bathroom, shower and kitchen installations. The lacquer or synthetic enamel began chipping and pealing away from the lip of the groove after the installation was a few months old. We found that the cause was moisture, and the remedy is: Be sure the striper wheel is so designed that it stripes the entire surface of the groove, especially the lip or the rim of the groove.

Where the stripe meets, or is supposed to meet, the body color—there is the danger point. If perfect bridging does not take place, the damage is done. Water or moisture eventually collects little by little until the finish begins peeling. If, on the other hand, the grooves have been properly sealed with the various number of coats used in building up the surface, the striping will only have to be applied for appearance sake and not to seal the porous grooves. To make this point clearer I will give you a little background on the manufacture of the raw tile board.

Grooves Must Be Properly Treated Before Striping

We all know that the board is basically wood pulp, pressed and heat treated. Some of the wallboard manufacturers score or groove the raw board by pressure. This method eliminates, to a great degree, the fuzzy or hairy effect which is so hard to seal. However, even this pressure scoring can cause trouble by improper sanding of the primer or surface coats, leaving frayed edges on the lips of the grooves, and the finishing coat failing to seal this porous condition. Here again, should the stripe fail to bridge this minute space, peeling is almost certain to occur in time.

The wall tile manufacturer who buys the blank stock and grooves

his own board, cuts through the processed protective film of the blank board and exposes the coarse fibrous wood pulp. In application of the sealers, primers, surfacers and finishing coats, this groove is not always properly sealed and a slight porosity is still there. Now if the stripe, which is pressed on as it is applied, does not entirely cover the groove from lip to lip, the peeling will eventually take place. So be sure to stripe the entire side walls of the groove, but do not over-stripe it so that the striping material will climb over onto the flat panel and leave a ragged edge. The best insurance against your striping problems is to choose the proper striping wheels to fit the contours of the grooves.

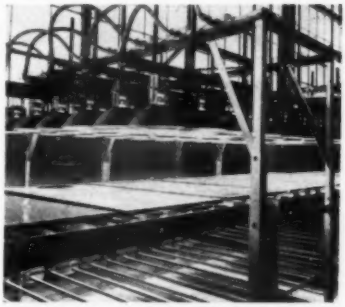
Other individual problems will be taken up in future articles.

Infra-Red Baking of Panels

AN INTERESTING aplication of an infra-red bake-finishing system is found at the Anchor Post Fence Co., Baltimore, Md., where large jacket panels for oil-burner heaters are now baked under lamps. These jacket panels are constructed of 20-gauge steel.

The operator in the spray booth applies a priming coat on the under side of the panel and a coat of hammered-effect enamel on the upper side. Over the enamel a special vehicle is applied to give the desired hammered effect; the panel is then ready for baking.

With a level cross-slat conveyor carrying the panels under a large bank of infra-red drying lamps, as illustrated here, this baking operation takes only eight minutes, the primer on the under side and the enamel on the top side being baked simultaneously. The equipment required occupies a space 30-ft. long and 5-ft. wide.



Here is how hammer-effect enamel is baked on sheet-metal panels at the Anchor Post Fence Co., Baltimore, Md. This bank of 72 infra-red, adjustable focus, lamp units does the job in eight minutes. The steel sheets are jacket panels for oil burners. Photograph, courtesy of Ault & Wiborg Corp.

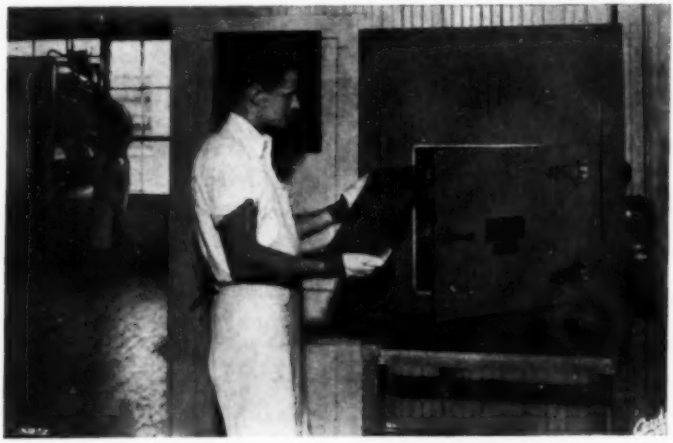
The conveyor carrying the panels moves at the rate of one foot per minute, a speed timed to the spraying output. When the sheets reach the unloading end, they are cool enough to handle.

No preheating is necessary. Full application of heat follows the instant the lamps are turned on. Cost of operating the oven is estimated at 20c an hour. The resultant finish on the oil burner panels is reported to be tough, durable and uniform.—Ault & Wiborg Corp.

New Nameplate—Dial Factory

Anderson & Sons, formerly located in Springfield, Mass., have moved to Westfield, Mass., where they now have one of the largest and most uptodate plants in the country for producing all types of decorated metal products by the etching, lithographing and embossing processes—all on one floor.

All kinds of metals are used, and a great variety of finishes are obtained.



Evaluation OF WOOD FINISHES

BY FRANK J. MANNING

IN THE EVALUATION of wood finishes cognizance must be taken of a number of the properties of the completed finish and of the characteristics of the finishing materials themselves. Included are scratch resistance, cold crack resistance, resistance to dry heat, alcohol and water resistance, resistance to both wet and dry printing, durability, sanding of the sealer, build, clarity, and rubbing qualities.

It is essential, of course, that a wood finish be a balanced one, that is, each of the factors mentioned here should have such a value that the finish as a whole is acceptable. To determine this overall suitability, two steps are involved. First, each factor is assigned a percentage rating, the value of which varies with its importance. For example, a typical set of ratings might be as follows:

Qualities of Your Finish	Percentage of Importance
Durability	20
Cold crack resistance	15
Print resistance	
Wet	10
Dry	5
Build	10
Clarity	10
Scratch resistance	10
Dry heat resistance	5
Alcohol and water resistance	5
Sanding of sealer	5
Rubbing	5
Total	100

Following the choice of percentage ratings, the finish is tested for each factor and evaluated on the basis of one to ten, where one is taken as very poor and ten as excellent, through such ratings as poor, fair, good, very good, etc. Finally, the value of each factor, as determined by test, is multiplied by the percentage rating assigned to it and the numbers so obtained are added to obtain the rating of the finish as a whole. It will be seen that a finish which is excellent in all factors would have a total rating of 1000.

Methods for performing the individual tests are given in the following paragraphs. It should be stated that the conditions given in the various tests are not inflexible and may be modified as required. They are given as starting points rather than as fixed quantities.

Making up a balanced list of the qualifications for a finish that you want and then conducting tests to learn how well certain materials under consideration meet each of these practical requirements.

Making an impact test on a finished panel, as the job is done in the testing laboratory of a well equipped material manufacturer.

Durability Tests

The durability of a wood finish is its resistance to deterioration on being subjected to varying conditions of temperature and humidity. A typical test cycle would include exposure to dry heat of 110°F. for a period of five days, followed by contact with a water-saturated cloth for two days. This procedure is repeated until failure occurs. Evaluation is made on the basis of visual examination of the finish for checking or cracking, whitening, etc., in comparison with a standard finish which has been subjected to the same test conditions simultaneously.

Cold Crack Resistance

The cold crack resistance of a wood finish is its ability to withstand sudden lowering of temperature without developing cracks due to unequal contraction of the film and the wood beneath. The test is made by firmly clamping the finishing panel, which has been rubbed and allowed to age for 24 hours, in a rigid frame to prevent warping. The finish is then sub-

jected to a temperature of 120°F. for one hour, followed by one hour at 10° below zero F. This alternate heating and cooling is continued until failure occurs. The number of cycles necessary to produce failure is the basis of rating. A standard finish tested at the same time is used for comparison.

In examining the panel for cracks, it is held at eye level and the rays of an electric light are allowed to strike the surface obliquely. On solid wood panels cracks usually show at right angles to the direction of the wood grain. Veneered panels may crack at an angle or parallel to the grain.

Print Resistance

The print resistance of a wood finish is its ability to withstand marking by cloth, paper, metal, etc., under pressure.

1) Dry—Dry print resistance is determined by placing a small piece of coarse cotton canvas on the finish and then placing on the canvas a weight of such dimensions that a pressure of 1-lb. per square inch is obtained. The finish should be rubbed and allowed to age 15 hours before the canvas and weight are applied. The absence of any print after 12 hours is considered satisfactory performance.

2) Wet—Wet print resistance is determined as just described, except that the canvas should be saturated with water and the weight should be of such dimensions that a pressure of 2-lbs. per square inch is obtained. No print should occur after 12 hours have elapsed.

Build of Film; Clarity

This property, also known as eye build or apparent film thickness, is one of the factors contributing to the final appearance of a wood finish. It is determined by visual examination of the completed finish in comparison with a standard finish.

Finish manufacturers often place coated test panels on outside racks to determine the performance of their materials under actual conditions of outside exposure.

Clarity, another property on which the final appearance of a wood finish depends, is freedom of haziness or cloudiness. It is not to be confused with color. The test is made in comparison with a standard finish, note being taken of the appearance of the finish with respect to gloss and the freedom from haze or cloud.

Scratch Resistance

This test determines the resistance of a wood finish to scratching by a coin, the fingernail, a knife or any other sharp instrument. The finished panel to be tested, along with a finished panel whose scratch resistance is known, are aged for

one week. After ageing, a coin, or knife, or the fingernail, depending on the finish, is drawn across the test panel and the standard. The extent and appearance of the scratch, along with any tendency of the finish toward softness or chipping is noted and the rating is made accordingly.

Dry Heat Resistance

This property of a wood finish is its ability to withstand heating from radiators, hot air vents, etc. It is determined by placing the finished panel in an oven for eight hours and maintaining the temperature at 150°F. On removal of the panel from the oven, the finish should be examined for blisters or shrinkage in comparison with a standard finish and rated accordingly.

Alcohol and Water Resistance

The resistance of a wood finish to alcohol and water is determined by placing small quantities of water, grain alcohol and a mixture of water and grain alcohol in pools on the finish and allowing them to remain for 12 hours. The finish should be rubbed and allowed to age for 12 hours before the test is begun. After the 12 hours in contact with the various liquids, the residues are removed and the finish is rerubbed and polished. No softening should have occurred and no spots should be visible.

Sanding; Rubbing

The property of sanding is the ease with which a coat or sealer, dried for a given period, may be cut down in a dry sanding operation with sandpaper. The test is made by applying a full wet coat of sealer to a panel, allowing an air-drying period of one hour to elapse, and finally sanding with dry sandpaper. The speed with which the dried sealer is cut, dusting and plugging of the sandpaper, is the basis of evaluation.

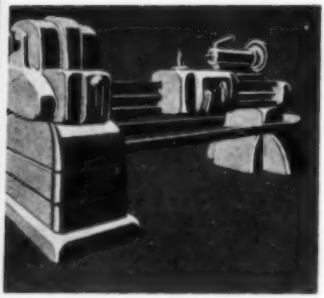
The test for rubbing determines the ease with which a wood finish may be rubbed to a smooth and even surface, using pumice and water, pumice and oil, or other rubbing media. The finish is rubbed, reversing the panel after each 50 strokes, until all orange peel and other surface irregularities are removed. The number of strokes required, as compared with a standard finish, plus attention to softening, loss of brilliance, etc., is the basis of evaluation.

In performing the above tests, it is necessary that the panels on which the finishes are applied and tested be of as nearly uniform quality as possible. It is also quite essential that film thicknesses, drying conditions, etc., be held reasonably constant. Finally, to obtain more accurate average results, two or more panels of each finish should be tested.

Schoene, Sales Manager for Forsberg

Harry G. Schoene, former salesman for the Sherwin-Williams Co., has been appointed sales manager of the H. Forsberg Co. of Cleveland, a manufacturer of industrial production finishes. For 20 years Mr. Schoene sold a line of production finishes to manufacturers in the Ohio, Michigan, West Virginia and St. Louis territories. He is experienced in the raw-material, laboratory and service divisions of the paint industry, and has handled a large volume of fleet, bus and body business. In addition, he has been a pioneer in the development of the silk-screen process of sign manufacture.

In his new position Mr. Schoene will cover the middle western territory, selling a full line of production finishes developed by the Forsberg Co.



Painting Machine

A practical and clear explanation of the three principal systems of painting the surfaces of machine tools—1) straight oil or enamel; 2) combination oil and pyroxylin; and 3) straight pyroxylin system.

IN last month's article I described the enamel system of painting new machine tools. In this article I am taking up the other two systems of machine-tool painting, namely, the combination oil-and-pyroxylin and the straight pyroxylin systems.

The Combination System

Finishing materials used in the combination system comprise the following:

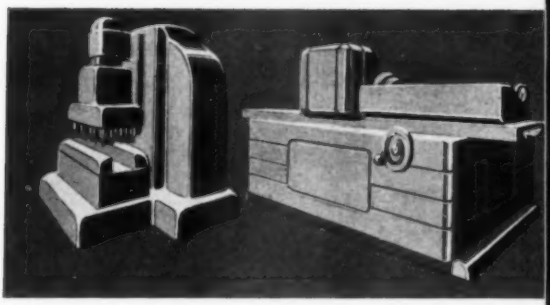
Machine grey primer
Gear-case sealer red
Iron filler
Non-shrink pyroxylin putty
Pyroxylin sealer grey
Standard machine-tool grey lacquer
Lacquer thinner

This system of machine tool finishing, as the name implies, is a combination or compromise between the straight oil or enamel system and the straight pyroxylin system of finishing. It involves the use of materials employed in either system and in such a manner as to attain the most desirable characteristics of each of the two systems. Four of the essential materials are the same as those used in the enamel system. The remaining two products—pyroxylin sealer grey and standard machine tool grey lacquer—are the same as those used in the pyroxylin system.

Appearance is improved. Production time is descreased. Durability and mar and oil resistance are stepped up. Total cost of the finish is somewhat more but less than the cost of the pyroxylin system. Many manufacturers find the resultant finish well suited to their special conditions and requirements. The pyroxylin sealer coat and standard machine-tool finishing lacquer may be secured in brushing quality, where spray equipment is lacking, but equivalent appearance cannot be expected in brushing these two final finishing products, and brush application is therefore not recommended for large and prominent surfaces.

Methods of cleaning and preparation of surfaces are as detailed under the enamel system. In the same way, the application of primer, crank-case sealer, iron filler, and non-shrink pyroxylin putty are the same as described under operations 1 to 5 inclusive, in Part I of

Tools—II



this article. Operations from this point continue in the following routine:

Continuation of Operations

6th—Dust off loose filler before sealing, and spray one cross coat of pyroxylin sealer grey. Reduce 50/50 with lacquer thinner. Allow two to three hours for air drying prior to machining or assembly or test.

7th—Machine, assemble and test.

8th—Wash all surfaces thoroughly free of the oil, dirt and grease accumulated in machining, using clean benzine and wiping dry with rags. Sand out and feather-edge chip holes.

BY CHAS. H. HAMPTON

Mgr. Industrial Sales Division
The Lowe Brothers Company

9th—Glaze in all damaged surfaces using non-shrink pyroxylin putty, and sanding smooth and flush.

10th—Spray second coat of pyroxylin sealer grey. Reduce 50/50 with lacquer thinner and apply a solid covering coat. Allow one-half to one hour to dry. Bright metal parts and machined surfaces should, in all cases of spray application, be protected by masking. This may be done by the use of masking tape and paper, or with special masks for the purpose.

11th — The machine is now in readiness for the finishing coat. Spray one cross coat of standard machine-tool lacquer grey. Reduction, 50/50 with lacquer thinner. Certain types of tools may be considered completed at this point. Generally speaking, it is best practice to apply a second spray coat of the finishing lacquer, as so doing adds to the appearance, giving a fuller, better, and more durable finish. In some cases, gas sanding is employed between the two finishing coats of lacquer, for the purpose of completely eliminating minor defects and blemishes on the surface.

Straight Pyroxylin System

Finishing materials for the straight pyroxylin system comprise the following:

Pyroxylin primer red.
"NuSpede" primer grey.
Pyroxylin gear-case sealer red.
Pyroxylin iron filler (C-5188).
Pyroxylin iron filler (C-7400).
Pyroxylin lead-free iron filler.
Non-shrink pyroxylin putty.
Pyroxylin machine-tool sealer grey.
Standard machine-tool grey lacquer.
Lacquer thinner.

Sequence of Operations

1st—Thoroughly clean the surfaces to be painted, as outlined under the enamel system (in Part I of this article). Cleaning, in the case of the pyroxylin system, is exceedingly important, due to all materials being of a lacquer type and the necessity of applying such materials to surfaces which, in all cases, are free of oil and grease.

2nd—Spray one coat of pyroxylin gear-case sealer red. Thin 4/1 with lacquer thinner. Spray application is recommended throughout this system.

3rd—Spray one light single coat of pyroxylin primer red. Reduction 2/1 with lacquer thinner. Allow 30 minutes to air-dry.

Note: "NuSpede" primer grey is an alternate primer, having the advantage of maximum rust-resistance for castings that may be stored outside. Likewise, it gives better build but is somewhat less speedy in production. Drying time, two to three hours. Reduction 5/1 with lacquer thinner. When employed, this primer is sprayed, giving one heavy wet coat to surfaces.

4th—Fill deep holes and depressions, using non-shrink putty at full body, and proceed with the filling operation immediately. Apply two glaze coats, using knife and rubber squeegee and reducing the pyroxylin iron filler to suitable working consistency. Unusually, rough castings may require a third glaze coat, although two coats are generally sufficient for a good appearance. Intricate or difficult shapes may be filled by brushing three coats of the filler, used at a heavy brushing consistency. Allow two to four hours to dry prior to sanding the surfaces. Pyroxylin iron filler or pyroxylin lead-free iron filler may be used.

5th—Sand the filled surfaces, using No. 80 production abrasive paper for cutting down, and finish the sanding by using No. 120 production paper. Use sandpaper over rubber or a felt block for large flat surfaces to obtain best leveling results.

6th—Spray one cross coat of pyroxylin sealer grey. Reduction, 50/50 with lacquer thinner. Air dry one-half to one hour before handling or machining. Machine, assemble, and test in this coat.

7th — Wash thoroughly, removing all oil or grease films; sand out damaged spots and feather-edge. Spot putty damaged spots and sand off smooth.

8th—Spray second cross coat of pyroxylin sealer gray, reduced 50/50 with lacquer thinner. Air dry at least 30 minutes.

9th—Spray first cross coat of standard machine-tool grey lacquer; reduction 50/50 with lacquer thinner. Allow 30 minutes to one hour for drying, and gas sand all prominent surfaces, using No. 320 emery cloth and naphtha. Wipe off sanding slush with dry rags, and spray second cross coat of standard machine-tool grey lacquer.

10th — Finish the machine by spraying a mist coat of lacquer thinner over the entire surface to remove all roughness from overspray and to produce uniform gloss. Remove all masking material and wipe off the bright parts.

The pyroxylin system possesses important advantages over the enamel and combination systems described in this article. It is definitely commended where utmost speed is necessary and where production must flow along in a regular uninterrupted manner. Brushing is eliminated and general appearance is improved. Durability

There are literally hundreds of EGYPTIAN finishes from which to choose, your final selection depending upon the product you have to finish ... Clear lacquers ... Colored opaque enamels ... Colored transparent lacquers ... Synthetics ... Novelties ... Finishes for all types of industrial products ranging from adding machines to zithers and most everything between.

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and wear are increased. Resistance to the action of hot oil and cutting compounds is found to be at the maximum.

The entire procedure is flexible and adaptable to practically any production requirement, and damage of parts in machining or handling is quickly and economically repairable. Chipping and damage to the finished surface in the field of service is at the minimum, due to present-day formulations offering unusual adhesion, cohesion of coats, and elasticity and toughness of the completed finish.

The application of a fine finish to a high class machine tool has, in recent years, received deserved consideration. The current trend is toward increased speed of production, continually bettered appearance, greater durability and greater facility in handling.

Castings are being purposely produced that require the very minimum of cleaning and grinding labor. Better sand mixtures, drying of molds, better pattern maintenance and construction and design offer the possibility of better castings and consequently better and less costly finishing.

Cleaning and preparation of castings is advanced through the use of steel grit for blasting, and is preferable to sand because it is faster and cleaner. Power grinding of castings with special-shaped wheels and discs produces better surfaces. Hydraulic washing out of sand cores is considered feasible and desirable to the elimination of dust and time consumed under the old method of chipping or breaking out of cores.

Modern practice indicates the use of exhaust type grinding and sanding benches of varying height to accommodate the various size parts and, of course, the necessary conveyors, cranes and special trucks to enable handling with ease and despatch. Aging and storage of castings in weather is no longer considered essential, thanks to research and improvements in foundry practice.

Uptodate procedure calls for the necessary cleaning, priming, filling, and sealing of the castings to be accomplished immediately upon receipt. Improvement in castings, in spray equipment, and in fillers is producing faster, better, and more economical filling and painting. The application of filler by spray is now successfully employed in the larger plants and with excellent results, thanks to the progress and improvements just mentioned.

Recent installations denote the value of a direct pipe line supply of finishing material to spray booths, carrying the desired products direct to the operators who work over down-draft booths and, in most modern practice, spray their work as it is carried along on gravity or power conveyors. In the same manner, companies requiring unusually fast output are utilizing conveyor equipment to convey castings through the cleaning stages, on into the prime coats, force-drying through conveyor ovens, filling, sanding, and again passing through force-drying ovens, and sealing—enabling a continuous, uninterrupted flow of parts to the very point of machining and assembly.

The painting of modern machine tools thus keeps pace with the constant demand of the industry, and is an important consideration to the finally completed tool—ready for shipment and service to the benefit of all industry.

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LIKE most of BINKS' major industrial installations, this large water wash spray booth, recently built for a well-known automobile manufacturer, is specially designed to do a specific job. This time it's finishing fenders.

The booth contains an unbroken water curtain of 60 feet, as shown in the photograph to the right. The area under the grill, which covers the floor in front of the curtain, is also water washed.

The air entering the booth is also washed and filtered so as to be perfectly free from dust. As a further precaution against the infiltration of dust, more washed air is delivered into the booth than is withdrawn by the exhaust fans.

Whether your spray painting needs are large or small, you will find that it pays well to investigate BINKS' equipment and engineering service. Big and small industry everywhere has learned to depend upon BINKS' spray guns, spray booths, and other finishing equipment for maximum efficiency at a minimum cost.

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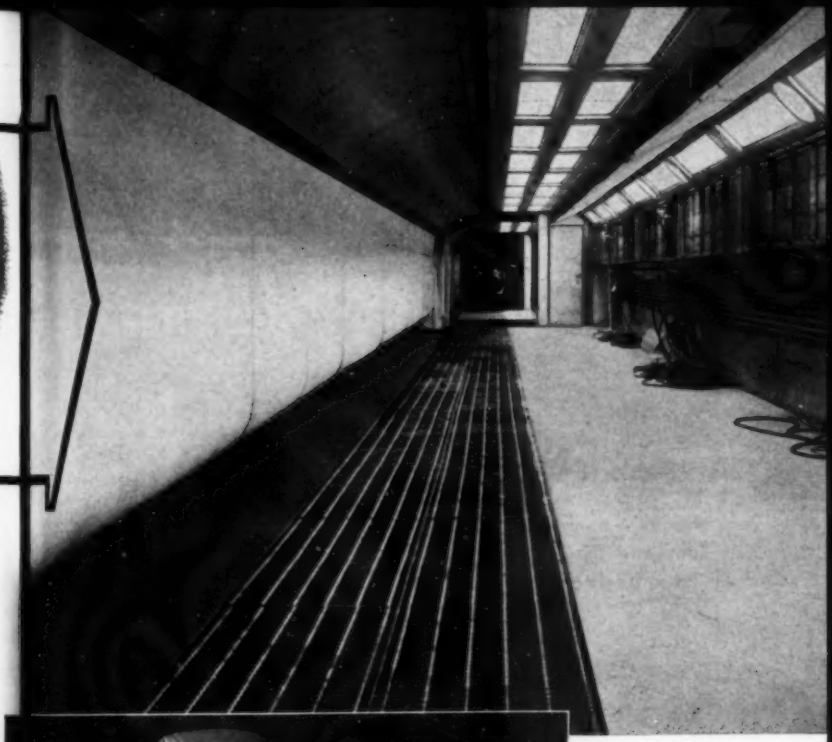

ABOVE: Inside view of spray booth showing unbroken 60 ft. water curtain.

LEFT: Rear view of spray booth showing water-wash chambers, circulating pumps and air ducts.

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Tumble Finishing

BY THOS. F. RICHARDSON

The shape, type, size and speed of tumbling barrels recommended for tumble-finishing small wood turnings in enamel, natural finishes and shellac — tumbling materials and tumbling time — also trays, ovens, oven heats and baking time.

THERE ARE MANY wooden articles that call for a tumbled enamel finish. Tumbling is an economical method of finishing, especially for many small articles that cannot be easily finished by spraying or dipping. Spools, beads and small knobs are some of the things that are usually adaptable to a tumbled enamel finish. Thousands of these small pieces can be coated in a few minutes in the tumbler, as each individual piece does not have to be handled separately.

The essential equipment required for tumble finishing consists of one or more barrels, several trays and a baking oven. Tumbling barrels may be obtained from a manufacturer, or they can be made of shellac barrels. I prefer the horizontal to the open-end type of barrel, as the closed barrels confine the vapors and they have a larger capacity. The enamel barrel should be round, as hexagon barrels offer no advantage in enamel finishing and they are too rough on the handles and enamel. The proper speed for a tumbling barrel used for enameling is 20-r.p.m.

Trays for Tumbled Products

The trays, in which the enameled pieces are dumped prior to baking, can be of basswood with mesh wire bottoms to allow air circulation. They should be about 30-in. long, 18-in. wide and 6-in. deep.

The baking oven should be capable of producing the baking temperature specified by the enamel manufacturer.

When handles and other articles which have been bored are tumble finished, they should be cleaned of any sawdust, shavings or chips, as these loose particles will come out during the tumbling process.

Peculiarities of Tumbling Enamel

The finest tumbling enamel is none too good for tumble finishing. One may "get by" with using a low-grade of dipping or spraying material, but never poor tumbling enamel. When the enameled pieces are in the baking oven they are jumble packed in trays and if the slightest softening of undercoats

STARTING AT THE FINISH

Many a fair damsel spends hours in the tub as the first step in her finishing process . . . getting the proper foundation for the creams, lotions and rouges that follow.

Miss Smart knows the importance of every step in the finishing process . . . she knows the value of each application . . . and she knows that the completed finish adds so much to her beauty and charm that it must never be neglected.

Many manufacturers have learned the same lesson regarding their products . . . they have found that a fine finish will do wonders in adding the attractiveness which invariably means quicker consumer acceptance and greater sales. Submit your product to our Creative Studio Staff for analysis. If the finish can be improved, your sales will likewise be improved. No charge to reputable firms for this service.

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occurs, they stick together as if glued. When they are taken apart there are rough spots where they were stuck together.

Tumbling enamel cannot be thinned like lacquer or other enamel, and still give the best results. The enamel must be bought at the proper viscosity to use, and not thinned at all except in rare cases, and then only for the filler coat. The solvent used for reducing, together with the tumbling operation, tends to soften the undercoat. It is the amount of material put on the handles or beads that regulates the thickness of the coating, and not the thinning as in dip finishing. If the enamel has become excessively thick, or has a crust of semi-dry oil at the top, a little turpentine may be added to get it into workable order; otherwise it is best to use it as it comes from the factory. It is not necessary to strain tumbling enamel but, of course, all finishing material should be stirred just before it is used.

Different articles require different applications of enamel. Some take two coats while others take up to five.

Filler-Sealer Coat, First

It is important that the filler-sealer coat be applied properly. The filler-sealer should be about the consistency of the tumbling enamel. It should have one part enamel to three of the filler-sealer mixed with it. The enamel adds color and makes the filler-sealer a tougher base for future applications. The second coat should be a clear enamel with no solvents added. Varnish, in the proportion of about one to three, added to the last coat, gives a high gloss. If the enamel is not lacking in pigment the three coats will do a satisfactory job of finishing.

Tumbling Time; Baking Time

The filler-sealer coat requires 15 or 20 minutes of tumbling. One quart of filler-sealer will do about 1000 average size handles (¼ to 1-in. in diameter by 2½ to 3-in. long). Small articles require more material according to their size and the amount of surface that has exposed end grain. The pieces will usually feel dry at the end of about 20 minutes of tumbling because most of the solvent and oil has been absorbed by the wood, while the pigment has been distributed and pounded into the minute cracks and crevices of the wood.

The first coat should be baked about five hours at the temperature prescribed by the enamel manufacturer. The extra baking time is for the heat to reach the center of the batch in the trays which have been filled "level full." The following coats will require only about two minutes of tumbling and about three hours of baking. Only enough material to cover the articles is applied for these coats.

Certain spools and knobs that are hard to cover can be coated by adding enough naphtha to the filler-sealer, so there will be plenty of material in the bottom of the barrel to completely submerge the pieces as they reach the bottom of the rotating barrel. Three quarts of naphtha should be sufficient. When the barrel has turned a few revolutions the surplus material can be drawn off in a pail which has been placed under the barrel to catch any material that leaks out. This material may be used in the next batch. The following coats can be applied as usual.

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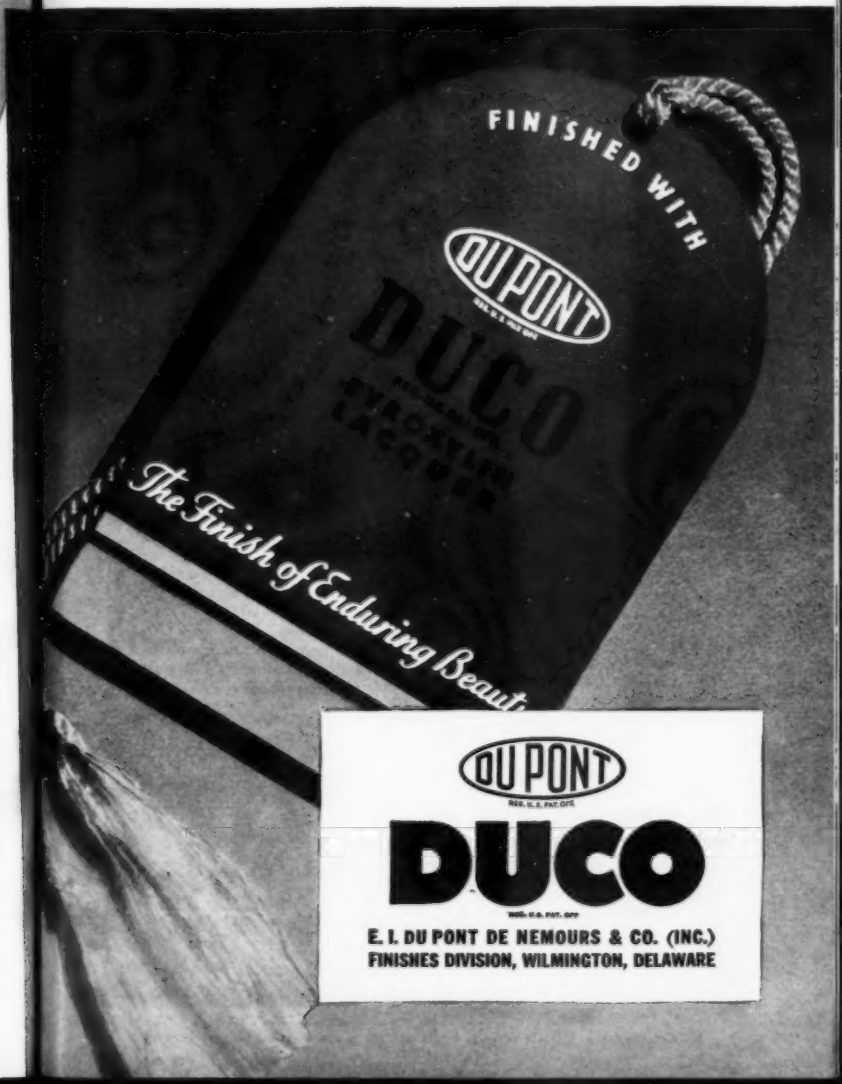

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Flat Surfaces; Light Coats

Flat objects have a tendency to stick together when they are tumble finished; this can be overcome by applying several very light coats. The enamel should not be thinned but should be applied sparingly after the filler-sealer has been applied. Four or five of these applications will produce a finish that appears to have been polished.

Natural Mahogany Finish

Mahogany or other colored varnishes should be applied without the use of a sealer, to obtain the best wood grain effect. The varnish will act as a sealer. A little white enamel or white filler can be added to the sealer for clear varnish jobs. The purpose of the white is to lighten the ends of the articles, which otherwise would be dark from absorbing so much of the varnish through the end grain. For best results colored and clear varnishes should be applied in small amounts to prevent rings at the contact points. If too much material is applied, capillarity will draw the varnish and cause it to be thicker where the objects touch one another while lying in the baking trays.

When the trays are taken from the oven they should be given a sharp jolt to separate the pieces and allow the soft spots, where they have touched each other, to become dry. After the pieces have cooled the contact spots will harden.

Machine oil, sprayed onto the articles when they are cold, will protect them while they are being packed and shipped.

Tumble finishing with shellac is somewhat different than finishing with enamel. Neither oven nor trays are needed and the barrels are hexagon instead of round. The hexagon type of barrel produces extra motion in the pieces to be finished, thus preventing them from sticking together. The speed of the barrels should be 25-r.p.m.

For handles that are not flat, shellac is applied with no reduction. Machine oil added to the shellac prevents the pieces from sticking and prevents the gloss from being rubbed off while tumbling. After the tumbling operation the oil is on the surface of the shellac and can be removed by tumbling with rags, if wax is to be applied.

Enough shellac is used on the batch to cover the handles. When this has set up, more shellac is added and the barrel is again started. Applications are made in this manner until the desired finish is produced. If the objects tumble too long, the gloss will be impaired, so they have to be watched closely.

After the shellac barrel has been in use for some time its ends will become unevenly coated with semi-dry shellac which comes off in bunches on the pieces. Washing with alcohol or lacquer thinner will remove this coating.

Wax is sometimes applied over the shellac. The shellac will have to thoroughly dry before wax is added, as it will not dry afterwards. Liquid wax is much better than hard wax. Often hard wax leaves translucent flakes and small spots on the finished job.

Fire Extinguisher Bulletin

A colorful illustrated bulletin that reveals interesting information about Phomene fire extinguishers for quickly putting out small fires in the paint room and finishing department, is available for free distribution by the Pyrene Mfg. Co., Newark, N. J.

Latest Finishes for Paper

Coatings that give paper surfaces a lustrous finish and much greater resistance to handling and adverse weather conditions have been developed and are now extensively used.

BY WARREN ROSSIN

SYNTHETIC resins are gradually "coming of age" in the paper industry. Every day new and important uses are being discovered for synthetic resins—for imparting increased resistance and attractiveness to paper surfaces.

The advent of many of the new chemical film wrappers appeared to be the "starting gun" for increased research by the paper industry. As a result of this effort the industry has produced many discoveries—too many to even mention in the scope of this article. I will, therefore, try to confine myself to applications that have attracted my attention during the past few years.

It may not seem proper to speak of an allied industry when our subject is paper, but you cannot discount the rapid advances the ink industry has made in the production of several new types of inks, particularly the "flash dry" type. This process has resulted in the production of magazines at a rate which heretofore was impossible. The resulting saving in time and labor has led to a reduced production cost, and consequently a lower selling price, which undoubtedly has increased purchases of magazines—and, naturally, paper.

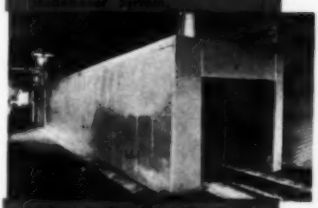
High-Gloss Lacquers

The use of high-gloss lacquers on magazine covers and display signs has increased the attractiveness of such articles considerably. It has also increased their "weather resistance" and "handling resistance." These lacquers, in many cases, contain alkyd resin plasticizers to give flexibility and high gloss. Many times specially formulated synthetic varnishes are used as "overprint" vehicles to impart much the same qualities. The use of paper instead of other materials has undoubtedly resulted.

The paper box industry is making rapid headway in the usage of synthetic resins. Many of these products are now coated with synthetic varnish and resins to increase the moisture and tear resistance of the containers. Synthetic resins are also being used, in some cases, as an integral part of the adhesives employed as binders.

Several patents have been issued recently concerning the usage of resin-paraffine combinations. Many types of resins are being used in conjunction with wax. The result-

Another Complete Mahon FINISHING SYSTEM



. . . New Studebaker System is a Model of Efficiency

In every automobile plant in the country, where highly efficient methods and equipment are essential to low cost production, you will invariably find Mahon Finishing Equipment. Why do these mass production experts turn to Mahon for their Finishing Equipment? . . . . . because they know that Mahon's engineering staff, through years of research, development and practical experience in this highly specialized field, are better qualified to design the type of equipment required in present day finishing operations. Mahon engineers will do a better job for you, too . . . Write today—consultation will not place you under any obligation.

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ant material, when applied as a coating on paper, has increased resistance to moisture and grease, and has imparted harder and glossier films.

Vinyl resins, in small percentages, are being used to impart increased moisture and tear resistance to cigarette papers and other forms of light tissues. Urea-formaldehyde and Zein (a corn product) formaldehyde resins seem to be making rapid advances.

Phenolic and coumarone resins are also used as impregnating agents for paper pulp, the material being combineed by heat and pressure to form tough resistance sheets.

"Hot Melt" Coatings

One of the most outstanding advances in paper coatings has been the advent of the "hot melt" type. In this process, specially designed resins, in combination with wax, are applied to paper at temperatures of about 220°F. The resultant films form a tough, flexible, glossy coating that finds many applications in the decorative paper field. Shelf papers, food wrappers and magazine covers are but a few of the places where these compounds can be used.

These coatings can be pigmented with the more common pigments to produce some very attractive finishes. It has been necessary to develop coating machines to take care of this work, but the results are unusually promising.

Many of these coatings have to, or can be applied by spraying, knifing, dipping, etc. The increased use of the synthetic type of materials has increased the demand for men who have a basic and thorough knowledge of methods and means of application. As time goes on, one sees the need for closer cooperation between the chemist and the finisher, especially when specialty finishes are involved.

Cleaning and smoothing rough castings mechanically and continuously with a modern "Airless Rotoblast Table." Photograph supplied by courtesy of the Pangborn Corp.

Seeking Finer Finishes?

AND OPERATING SAVINGS TOO!

THIS combination is hard to find It has been causing pre-mature grey hair all around. We suggest a reliable answer — put it up to Despatch engineers. They have been accomplishing remarkable results in countless plants to the combined satisfaction of the finish expert and the cost accountant.

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Read about the many NEW DESPATCH FEATURES that improve finishes and permit new savings. They are presented for the industry in the new DESPATCH BULLETIN NO. 51

DESPATCH OVEN CO.

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Plastic Finishes in Clear and Color

Moulded and laminated clear plastics can now be attractively and satisfactorily decorated in the color of your selection and specifications. Each type of plastic, however, requires special formulation for proper drying, adhesion, gloss and durability of the finish.

The Fred'k A. Stresen-Reuter, Inc., 2113 Medill Ave., Chicago, Ill., is prepared to supply whatever type of plastic finish may be required, as well as to offer bronzing coatings that give reverse leafing of bronze powder on the bottom of the film for plastics coated on the reverse side, and coatings that prevent migration of the plasticizer out of the plastics.

Essar brand plastic finishes are available in clear, colors, and bronze for the several types of plastics.

The company reports that as a result of its experienced developments in this field, many satisfied customers have been in production for a long time.

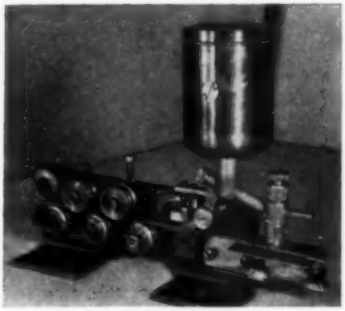
Automatic Striping Machine

A striping unit that can be used by hand as a portable tool and moved over or across surfaces to be striped, or mounted singly or in multiple to apply stripes to various products which are fed past it by power, is now manufactured by Wendell Mfg. Co., 2535 N. Ashland Ave., Chicago, Illinois.

The accompanying illustration shows a single unit set up to roll a color stripe on narrow metal strips which are being fed under the striping wheel by power. A cylindrical reservoir supplies fluid by gravity. The rate of flow of fluid to the serrated wheel can be controlled by turning an adjustable screw which is located directly above the wheel.

For running stripes on vertical or angular surfaces, the position of the reservoir is changed so that the gravity feed arrangement will function satisfactorily.

The feed rollers and frame which guide the metal strips to the striping roller are custom built to suit the job. This same set-up can be used to lay



Laying on continuous stripe automatically.

single or multiple stripes on automobile mouldings or any other similar products. Units can be set up in multiple to stripe the grooves in tile board and a variety of other products.

Mixer Improved

Among the improvements in its portable electric paint mixers, the Mixing Equipment Co. Inc., Rochester, N. Y., announces the new built-in lantern-ring puller. By making removal of the entire lantern ring a matter of a few seconds, maintenance men are sure to replace packing below the ring as well as above. This,

New...

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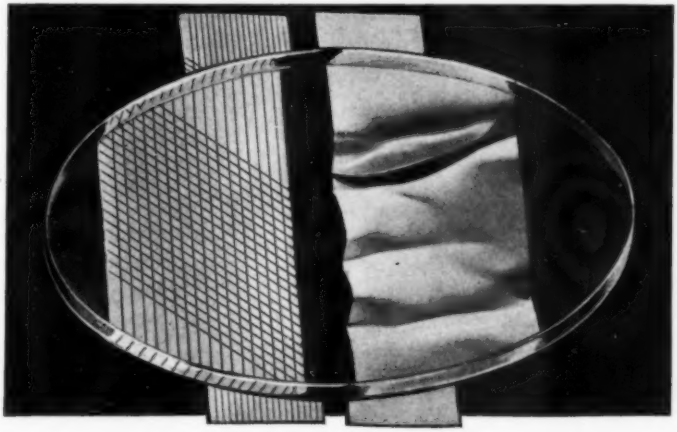

No Chipping! No Flaking!

● Here are two unretouched photographs, magnified to show the phenomenal adhesion and elasticity of Glidden's new "115" synthetic enamel.

Both panels have been given a single coat of "115" over bare metal. The one on the right was then put through a gruelling course of hammering—bending—twisting—sufficient to destroy any ordinary enamel surface. Yet "115" came through unmarred and unbroken as the photograph shows!

The panel on the left was scarred with a knife point—criss-crossed and cross-hatched. See how sharp and clear each cut mark stands out, without a sign of flaking or chipping in the resilient coating of "115."

If your products suffer from blemishing in handling or shipment—try "115." It comes in all colors listed in the U. S. Government Standardization of Kitchen and Bathroom Colors, and conforms to customary baking schedules.

Ask the Glidden man about it when he calls!

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in turn, lengthens operating life by reducing wear.

Operation of the puller is extremely simple. Once the upper packing is removed, the puller bolts are threaded into the lantern ring. Compressor nuts are used below the compressor ears to pull out the entire assembly. No special tools are needed and the whole operation takes only a short time. "Fishing" for hard - to - remove lantern rings is completely done away with, and risk of marring or scratching "frozen" rings, as well as possible damage to the shaft, is eliminated.

This type of construction is well adapted to most types of stuffing boxes where repacking is a problem, as is shown by the fact that Mixing Equipment stuffing boxes are built to withstand 150-lbs. per square inch pressure or 29-in. of vacuum.

Brush Preserver

The Y & N Paint Brush Preserver is an all-metal container designed to suspend paint brushes at correct depth in individual compartments, holding paint solvent or preserving fluid, and provided with a wringer to clean each brush before and after using.

The outer box is substantially built of sheet metal, with a hinged lid to make it a closed container which can be locked to prevent tampering. A handle is provided for convenience in transporting it to and from the work.

Individual brush clips grip on each side of the brush compartments, holding brushes suspended at correct depths in the preserving fluid. Clips can be arranged to accommodate the various width brushes.

This preserver is a product of the Yenne & North Mfg. Co., P. O. Box 362, Wooster, Ohio.

Venetian Blind Coating Machine

Two sizes of machines for roller coating the slats of Venetian blinds are announced by Torres Venetian Blind Machinery Co., 1945 Park Ave., New York, N. Y. The Junior Model takes slats only; the Senior Model is for slats, tilts and heal rails.

Quoting from the company's brief specifications:

"All roller shafts are ¾-in. steel shafting. Transfer rollers are machined to exact size and polished to insure uniform flow of paint. Distributing rollers and painting rollers can

"Our aim is to keep our machines running all the time, within the highest degree of perfection."

If you are working on government orders, and have any finishing problem, we will be glad to help you solve it. For years we have supplied government-specifications materials to the U. S. Army, Navy and Federal Departments, and we are therefore in a position to give you practical information. Such help may save you considerable time and expense. We invite your questions.

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be instantly adjusted to apply as little or as much paint as desired. Feed rollers are made of semi-hard rubber driven by positive chain drive, insuring exact synchronization with paint roller.

"The machine is driven by a 1/3-h.p. motor turning at 1725-r.p.m.; feeding magazine is either foot pedal or automatic; edge coater consists of a positive attachment for painting the edges at the same time the sides are being painted; equipped with standard Boston gears throughout.

"This machine will paint any width and length of slats, as well as any thickness of rails. The machine illustrated will paint any thickness up to 1¼-in. thick. It may be operated up to 500-ft. per minute but the best results are obtained at speeds of between 85 to 125-ft. per minute. The edges are painted at the same time the sides are being painted."

"B & B Cal" Lacquer

The Speed-O-Laq Products Co., 2386 Wycliff St., St. Paul, Minn., announces that its patented lacquer "B & B Cal" provides a coating for covering the surface of cellulose acetate molded products such as "Lumarith" or "Tenite," protecting and beautifying them, and becomes an integral part thereof. This product is manufactured in clear and in a large variety of colors for both dipping and spraying.

"Film-Fix"—A Fine Aluminum Paint

An aluminum finish that is so fine, uniform, smooth and lustrous that a coating of it on sheet metal looks like a "plating job," is announced by O'Neal Paint Products, Inc., Cleveland, Ohio. The material is called "Film-Fix."

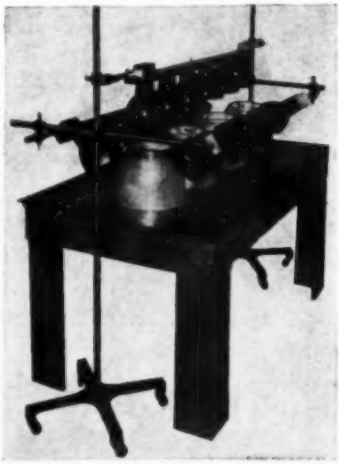
According to the company's literature, Film-Fix is a spraying material, but produces a very good finish in dipping operations on small parts. It will bake at any degree up to 1000°F. without discoloration, and it adheres to steel at 1400°F.; air dries to handle in ten minutes and is hard in six hours; is furnished in two forms, ready mixed or put up in double-compartment containers; has excellent adhesion and is remarkably elastic; produces such a high gloss sheen that clear top coats are not necessary; resists brines, gases, acids and extreme heat temperatures, and stands very high in rust preventive qualities.

Red and blue are the best trim colors for Film-Fix.

Adjustable Infra-Red Bank Assemblies

The Op-Al Electric & Mfg. Co., Indianapolis, Ind., has developed bank assemblies of infra-red baking lamps for use in industrial and metal refinishing shops.

These infra-red bank assemblies are especially designed for establishments that have limited floor space. They



In this set-up, banks of lamps are positioned to make the heat "flow" from three directions.

SECURE *Greater Value* WITH DAY'S LACQUER AND SEALER

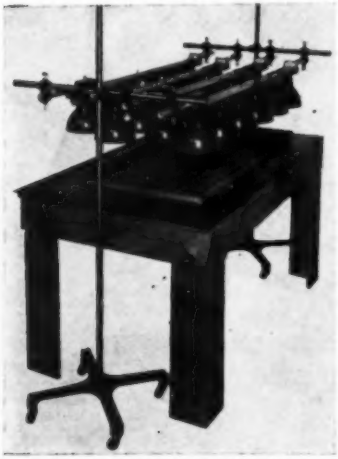
Day's Lacquer and Sealer have a well deserved reputation for good value, economy in application, attractive appearance and durability.

This reputation is not accidental. It is built on the experience of users who find that Day's Lacquers and Sealers produce the results for which they were formulated.

Whether your requirements are primarily for high quality or low cost, you will find that Day's Lacquers and Sealers produce the finest results with the greatest economy.

Information regarding your requirements will bring a prescription for Lacquer and Sealer that will stand up on your product. No obligation. Write today.

JAMES B. DAY & CO.
• CHICAGO •



Here all of the heat is directed down, as in baking the finish on flat panels or sheets.

may be had in various lengths and widths to meet a large number of special baking requirements.

Adjustment to all angles is obtained through means of cross slide blocks and thumb screws. When used as portable units in a horizontal position, two bases and uprights are required. When operated in a vertical position, from one to six lamp banks can be handled from a single base and upright.

Standard length of unit banks available from stock are 4-ft. long, rated at 1500-watts, and 8-ft. long rated at 3000-watts. Banks are wired complete, ready to connect to 110 or 220-volt circuits, as specified.

Due to the extreme flexibility and ease of adjustment these infra-red assemblies are especially useful to plants having to contend with a multiplicity of baking operations.

Vacuum Cleaners

The Electric Vacuum Cleaner Co., Inc., Cleveland, Ohio, one of the largest manufacturers of vacuum cleaners has just introduced two models of a new 1-h.p. Premier industrial cleaner, designed to meet the most exacting requirements of industrial and

Electric portable vacuum cleaners.

commercial use. Model 184 has a 2-bushel capacity; Model 184-A, 1½ bushels. Each cleaner has a 1-h.p. Universal-type, air-cooled motor.

The new cleaners are streamlined for easy portability and storage—all unnecessary gadgets have been eliminated to assure trouble-free years of hard service. The Premier Industrial requires practically no attention—not even lubrication. The new type crinkle-finish on the container is durable and long-wearing.

I have found Industrial Finishing Magazine to be a remarkable textbook of invaluable information for those who are interested in better finishes and the equipment for producing same.—J. L. M. (Industrial Engineer).

★ *Meeting the Needs of* HOME APPLIANCE INDUSTRY *with Adhesive Tapes*

Ewing Galloway, N.Y.

Experts in this important field depend upon Industrial Tape Corporation line of tapes to protect polished surfaces, for striping and masking, to hold movable parts in place and for transportation.

We invite your special tape problem. Our laboratory will help solve it, without obligation.

INDUSTRIAL TAPE CORPORATION
NEW BRUNSWICK, N. J.

★PERMACEL
The Paper Backed Tape

★JONFLEX
Fine Cloth Tape

★INDUSTRIAL
Coarse Cloth Tape

★UTILITAPE
Waterproof Cloth Tape in Standard Colors

★ELECTAPE
With Flexible Bakelite Coating

TEXCEL
The Cellophane Tape

•

Samples on request

While prevention is the prime objective of everyone in the field of fire safety, millions of fires continue to break out every year regardless. Hence, everyone should be prepared to cope with them when they do happen.

Hand Fire Extinguishers

THEIR SELECTION, INSTALLATION, MAINTENANCE AND USE

A SLIGHT ACCIDENT or a moment's carelessness may start a small fire at any time where there are materials that will burn.

A small fire can easily be put out if the proper means are at hand, but if it is allowed to spread, it may destroy life and a great deal of valuable property; therefore, every building where a serious fire can happen should be protected with some means of extinguishing small fires quickly.

Hand fire extinguishers are designed especially for this purpose. With an extinguisher of the right kind, a fire can be fought effectively from a safe distance, but if a less suitable weapon is used, it may not only fail to put out the fire but may bring the user dangerously close to the flames. Many lives and immense property values are saved every year by the prompt use of hand extinguishers.

Reliability of Extinguisher

Hand fire extinguishers bearing labels reading "Underwriters' Laboratories Inspected" and the letters "F. M." in a diamond-shaped design have been tested by recognized fire-protection authorities and conform to accepted standards, including those of the U. S. Government. Extinguishers so marked are known to be reliable.

Types of Hand Fire Extinguishers

There are several different types of hand fire extinguishers, each of which is suitable for certain special purposes. To make sure of the right protection, it is well to consult a representative of a reliable fire extinguisher maker.

Location of Extinguisher

Fire extinguishers should be conspicuously located in places where they can be easily reached, and, also, always near exits so that the user can get out safely, if necessary.

Extinguishers can be hung on hangers, supported by brackets, or set on shelves, but the top of the extinguisher should never be more than five feet from the floor. The space around them should always be kept clear of boxes, barrels, or anything which might make the extinguishers difficult to reach when needed.

Operation of Extinguisher

All approved hand fire extinguishers are easy to operate and

37% SOLIDS
at the gun

FIVE GALLONS AT DRUM PRICE

NOROY **LACQUER W-1055**

[THE ONLY CLEAR ALCOHOL PROOF GLOSS WOOD LACQUER WITH 37% SOLIDS SPRAYED COLD.]

- A specially developed one coat furniture finish sprayed cold. Produces a high build, beautiful alcohol proof finish. Saves Time, Labor and Money. Attractively priced.
- Cold Check durability test No. 12958 of W-1055 Lacquer by U. S. Testing Co., Inc., Hoboken, N. J., showed no checking after 15 cycles.

NOROY S-1230 SEALER

Dozens of leading furniture manufacturers using NOROY S-1230 Sealers say . . . .

- Fills exceptionally well.
- Forms perfect bond.
- Does not shrink.
- Dries quickly.
- Sands easily.
- Costs less.

Make your own "Convince Yourself Test." Order five gallons at drum price today.

RUDD LACQUER CORPORATION

127 MAIDEN LANE **NEW YORK**

Factory—Rahway, N. J.

carry labels with directions for operating. It is well, however, for everyone to know, in advance, how to handle and operate extinguishers so that no time will be lost when prompt action is needed.

In fighting fires in ordinary combustible materials with a fire extinguisher, always direct the stream at the base of the flames so that the burning materials will be cooled and quenched.

In fighting fires in flammable liquids, be sure that you use the right type of extinguisher, since, if water is thrown on the flames, it will merely scatter them and make matters worse. If the burning liquid is in an open pan, or tank, play the stream from the extinguisher on to the inside wall of the container just above the burning surface. If the burning liquid has been spilled on the floor or ground, play the stream on the edge of the liquid nearest you and slowly move forward, moving the stream from side to side, until the entire area has been covered.

Two or more people with two or more fire extinguishers and plenty of refill materials may be able to keep a large fire in check, or protect a nearby building from catching fire until help arrives.

Maintenance; Inspection; Recharging

Fire extinguishers must be ready for instant use at all times. This means that they must be inspected often and properly maintained.

It is important to remember that certain types of fire extinguishers must be discharged and re-charged once a year, while others need only to be checked to make sure that they are in good working order. In every case, maintenance and re-charging instructions are carried on each extinguisher. These instructions should be carefully followed.

All extinguishers should be inspected at least twice a year to make sure that they have not been tampered with or discharged and replaced without re-charging, that the nozzle opening is not clogged, and that no parts have been damaged.

In re-charging extinguishers or replacing damaged parts, always use materials supplied by the manufacturer of the extinguisher, since, otherwise, the extinguisher may not operate properly when needed.

Every extinguisher should have a tag attached to it, on which should be written the date, whenever it is inspected or recharged.

Frozen extinguishers are likely to be badly damaged and must not be discharged in the regular way or repaired locally. Remove the contents by taking off the cap and send the extinguisher to the manufacturer for inspection and repair, if this is possible.

Color Blindness Test

Thanks to the foresight of U. S. military authorities, new color blindness tests have been compiled by them, thereby making this country independent of Germany and Japan, principal sources of previous color perception tests.

The new tests, approved for use in the armed forces of the U. S. by the Surgeon-General, will replace as a national standard in this country the Ishihara test, printed in Japan, and the Stilling system, of Germany, both of which are practically impossible to obtain due to the war.

The new compilation, which will be distributed by the American Optical Co., Southbridge, Mass., incorporates the best of the Ishihara and Stilling tests and adds features leading to the detection of those persons who do not wish to pass a color blindness test and also those attempting to hide their color blindness.

THIS FINISH TAKES

a 1 5/8" draw from a flat sheet

Retaining its beautiful, continuous surface lustre through deep draws and severe sterilization, Color-Cote has made paint history. Applied by brush, spray, dip or roller, Color-Cote works easily, covers perfectly and dries to a brilliant, modern finish . . . If you have a metal coating problem, write Watson-Standard for a "tailor-made" solution and a sample to prove it . . . This saves you time—and money.

COLOR · COTE

WRITE FOR SAMPLE

TOUGH JOB HEADQUARTERS

℞ Prescription Finishes

Give us your metal coating problem. We guarantee you an answer based on your conditions, and not just a standardized formula.

. THE WATSON-STANDARD CO.

Manufacturers of

PAINTS . . . VARNISHES . . . INDUSTRIAL FINISHES AND LITHOGRAPH COATINGS

FACTORY AND GENERAL OFFICES: PITTSBURGH, PA.
WAREHOUSES: BOSTON · BUFFALO · DETROIT · NEW YORK

Metal Casket Finish Trouble

I am a casket finisher and we are having trouble with our finishes. I have been advised by a friend, who has given me a copy of INDUSTRIAL FINISHING magazine to read, to write to you. Our company is receiving a number of caskets back from the undertakers —rejected because of the finish. Our salesmen are panicky; the entire personnel stands uneasy; we of the finishing room are really living in a critical period which cannot last much longer because the blame put on us grows heavier each day. Please advise me on the following questions:

1—What should be used in rubbing a bare metal casket?

2—How long should the casket stand (not in an oven) before the primer can be put on?

3—What is the best method of obtaining a wrinkle finish, a stipple finish, a Jack Frost finish, and a marbleized finish on metal caskets? Please send the names of companies that manufacture these various finishes.

4—In your February 1940 edition, what company is it that offers an air-brush finish effect of onyx, marbleizing and similar finishes?

5—Please supply me with the name of the concern referred to in your magazine as having transfer graining paper for wood-grain reproduction on metal.

The chief problem that our company is having is the peeling off of the finish. Round-cornered caskets peel off almost immediately after being finished. Do you think the filler we use is to blame? One person advised me that hot-rolled and cold-rolled steel has something to do with it. Another says the washer, who rubs the casket before the primer is put on, is to blame because of a poor washing solution. Another says the primer is too heavy. Yes sir, we are living on pins and needles every day. Please write me . . . . —L. R.

It is possible that your metal cleaning operation is not being done satisfactorily, or with the right material. This can only be determined by personal examination or tests of the cleaned metal, preferably accompanied by personal observation of the methods, materials and equipment used in your finishing department.

Since you are located in a large industrial city, we recommend that you call in one or more local representatives of the metal-cleaning manufacturers who advertise in INDUSTRIAL FINISHING. We feel sure they can take care of this phase of your problem.

Are there traces of soldering or welding where your finish is flaking off? Sometimes this causes trouble and these places must be specially treated or cleaned with just the right type of cleaner to neutralize the effects of soldered or welded areas under the paint.

Questions; Answers

Questions are welcome and will be answered promptly by mail. Readers are invited to prepare and send in additional information relating to any of these questions and answers.

There's your man, Boys!

Uncover the thief who is padding your costs . . . milking your profits. Let the Stanley "laboratory detective" discover for you the finish which really "fits" your product . . . meets your every requirement at minimum cost. It will cut finishing time, reduce finishing expense, increase the salability of your product . . . and your PROFITS! Call in the Stanley "laboratory detective" TODAY. He always (well, almost always) gets his man. And there is no obligation. Address Department J.

THE STANLEY CHEMICAL CO.

EAST BERLIN CONNECTICUT

Lacquers · Enamels · Synthetics · Japans

A SUBSIDIARY OF THE STANLEY WORKS NEW BRITAIN, CONN.

In addition to washing the metal surface with suitable cleaner, it may also be desirable to go over it with fine sandpaper or steelwool. Have you tried this?

As to how long the casket should stand after being cleaned, before primer is applied, the answer is: "Until it is perfectly dry." This may be only 5 or 10 minutes, or it may be an hour or more.

Once you are sure that your metal cleaning cannot possibly be at fault or to blame, then begin a searching examination of everything connected with your prime-coating job. Thin coats are always the rule, particularly the first coat applied to the bare metal. This coat must have excellent adhesion; it must be thin, it must dry thoroughly before anything is applied over it, and it must be a material that is compatible with (not antagonistic to) the coating materials to be used over it.

You might make up some test panels on which you will use your present primer (under present and some different conditions) and one or two other brands or types of metal primer. Your experiments or tests should show which is best. If you haven't the time, facilities or company permission to do this, call in a local finish manufacturer's representative and have his company prepare some test panels to show to your company executives.

Regarding the several types of finish you mention, you can obtain materials for producing these effects from manufacturers in your city — concerns who advertise in INDUSTRIAL FINISHING. In a letter to you we are naming several such concerns located in your city and elsewhere.

Concerns making or selling the spray guns and graining paper you ask about are also located in your city. We recommend that you call in their representatives, explain what you want to accomplish, show them what you have to work with and work on, and they will furnish you specific information based upon an accurate knowledge of your problem.—ED.

Air-Blowing Dust; Tack-Ragging

In some cases, in addition to air-blowing items before spraying, we have to use tack rags to remove the dust. Could you inform us of a better method or a cheaper substitute?—G. Mfg. Co.

If dust or dirt particles remain after air-blowing the surfaces to be finished, we know of nothing better or cheaper than tack-ragging. If your workmen air-blow the dust from your products, and do it thoroughly with adequate air pressure (50 to 80-lbs. per square inch) and if this is done within a partly closed area (like a spray booth, for example) where there is plenty of suction to pull away all of the loose dust as rapidly as it is dislodged, and if the air in the room is so clean that no additional dust or dirt collects on the cleaned surfaces, then your products should be so clean that they will not require tack-ragging. This air-blowing is usually all that is necessary.

Of course, in extreme cases, it may be necessary to brush the surface with a dry clean stiff-bristle brush while air-blowing it with the air gun. This brushing might be more effective in dislodging all of the loose surface dust, some of which might be inclined to cling

A LITTLE tow-headed kid on the other side of the schoolroom puts a paper clip into a rubber band, yanks back, aims at the left ear of a boy across by the windows and -z-z-zing! Missed! There's a crack of metal hitting metal. "Who did that?" Miss Beecham yelps, whirling around from the blackboard. Ah, well. Let's leave them there.

Many's the paper clip that has smacked up against the steel cabinet which houses Peervent Ventilation, a system used by schools. And boys put their lunch boxes on top of the cabinet during lunch hour. Toss books on it. Even sit there if the heat's not on. All of which, including the heat, demands a superior kind of finish.

So Sherwin-Williams Kem Lustral enamel and Kem Art Metal finishes were specified. Other advantages, to quote the Peerless Unit Ventilation Company, are that, "Kem Lustral is the easiest-working, one-coat finish we have ever tried . . . Kem Art Metal is the only wrinkle finish we'll use because it's practically fool-proof!"

Most production lines require this quick, easy and economical application of Sherwin-Williams Industrial finishes. Most products need the Sherwin-Williams selling-power of outstanding beauty plus durability. How about yours? Drop us a line and we'll get together on it. Address The Sherwin-Williams Co., Cleveland, O.

The Peervent De Luxe Cabinet, finished with Kem Lustral and Kem Art Metal finishes. Made by Peerless Unit Ventilation Company, Bridgeport, Conn.

SHERWIN-WILLIAMS INDUSTRIAL FINISHES

to the surface unless it were brushed loose. Possibly a higher air pressure at the air gun might also help, say as high as 80 to 100-lbs. per square inch.

Naturally, the value of this thorough cleaning by air will very likely be lost if the products are not immediately finished. If they are stored for a while, or even allowed to stand on trucks in a room for a few hours, they may collect more or less loose dust particles, depending upon how clean or dusty the air is in that room.

If the products have been stored for several days or weeks in a dusty dirty room, then this air-blowing may not be adequate to clean off all of the dirt and dust, especially if the products are rehandled and restacked while dusty. This rehandling would tend to press some of the dust or dirt into the unprotected surfaces, and it would be hard to dislodge. Tack-ragging would then be necessary in addition to air-blowing.

As a matter of fact, tack-ragging isn't particularly expensive and we know of nothing cheaper —except to arrange your work and shop interior so that tack-ragging will not be necessary. In other words, clean the incoming work immediately after it leaves the assembly and final sanding in production, and then either finish it immediately or temporarily store it in a dust-tight room where only filtered air is admitted.

Without knowing more about the exact conditions in your establishment, this is about all we can think of to suggest offhand at the moment.—EDITOR.

"Air Seal" at Open Oven Door

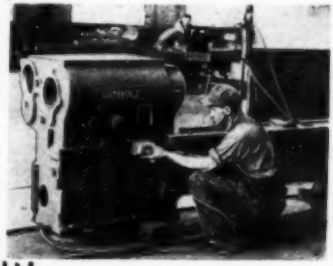
We are interested in securing information regarding an air seal, to be used in connection with a box type oven 35-ft. long, with two openings approximately 4-ft. square.

By an air seal, we mean a method of keeping the hot air inside the oven with the use of a stream of cold air passing across the face of each opening, or by any other method.

If you are familiar with the method used to seal an oven without the use of doors, we would appreciate your passing along any information you may be able to secure.—D. E. Industries (Home Appliances).

Air seals on open-type ovens may be provided for by means of controlling the amount of fresh air and oven-heated air that are exhausted or recirculated at the open ends of the oven.

3 Men's Work for 1 Man's Pay



STERLING
SPEED-BLOC SANDER

- Cuts material costs 50%.
- Produces better work in one-half the time.
- Pays for itself in a short time.
- Easy to operate — one hand guides the Sterling.

Sands flat or curved surfaces. Sands filler coats, "feathers" spot jobs, takes off burrs — does almost any kind of sanding and rubbing on any surface—quicker, better, and more economically. Can be used for wet or dry sanding.

Ask for Free Demonstration

Sterling
TOOL PRODUCTS COMPANY
359 E. OHIO STREET CHICAGO, ILL.
615 W. Washington Blvd., Los Angeles, Calif.

HERE it is!

cannot be marred or scratched

A lacquer finish that cannot be marred or scratched with the thumbnail, or other destructive agencies—a much tougher piece of goods than the ordinary lacquers. It produces a splendid transparent finish of full depth on maple, walnut, gum, mahogany and other cabinet woods . . . It is made in either the Clear Gloss Rubbing or the Satin Finish. Mar Proof Lacquer Sealer is recommended for the first coat.

Send for FREE WORKING SAMPLES

THE SCHAEFER VARNISH COMPANY, Inc.
Louisville — — Kentucky

It is not a simple matter to figure the size of fan or the openings that are required to take in the proportional amount of the two air mixtures. This requires highly technical men trained in the handling of heated air.

Any of the leading oven manufacturers in the country can furnish air seals for open-type ovens, and it is our recommendation that one of these firms be contacted.—EDITOR.

Tumbled Shellac Finish

We have a problem in our finishing department, on which we thought you might possibly help us.

The accompanying drawing shows one of our concave shaped wooden garment hangers. This

These wood hangers are tumbled.

hanger is made of dry beech lumber. We have been tumbling a shellac finish on the pieces but, at times, are not satisfied with the finished product. The shellac seems to fade away after a time and does not hold the hard glossy finish which is necessary.

We use 5-lb.-cut orange shellac, cut with "Ponsolve" or alcohol. This is poured into the wooden tumbling barrel, over the pieces. After tumbling in this barrel, the pieces are taken out and put in another tumbler in which our polishing wax is placed.

Often the pieces come out of the tumbler with small specks adhering to them. We use no sawdust or anything of that kind. Then, too, the finish might look satisfactory until the hanger is assembled and then the finish seems to have faded or dulled.—P. R. Co.

Are we to understand that you tumble these hangers after they have been assembled into their finished shape? It would seem to us that the shape of the hangers is unsuited to tumble finishing.

We would suggest dip finishing in multiple, using shellac or a mixture of shellac and mixing lacquer, or perhaps a straight lacquer finish. After this finish had dried you might possibly tumble the hangers with wax, although we believe that possibly this waxing operation would be unnecessary.

Another suggestion is to first dip the hangers in a lacquer sealer, allow this to dry, and then dip them in a clear or tinted lacquer finish. The sealer coat would seal the pores of the wood so that the finishing lacquer coat would be held out and appear as a lustrous finishing film on the outside of the hangers.—EDITOR.

While the information you supply on the exact procedure employed in finishing your garment hangers is less complete than what might be desired for a thorough analysis of the trouble, it is possible that some suggestions can be offered. You do not state the exact schedule on which these pieces are finished; that is drying times, etc., whether the trouble is more or less consistent or if it is

Make a Note of This...

THRESHER PER-FEX-ION SYN-AMEL-SERIES 600

An entirely new development in finishing materials! For: Refrigerators, Washing Machines, Kitchen Cabinets, Hospital Equipment, Metal Specialties, etc. This product has:

1. Excellent Resistant to water, soap, stain, and grease.
2. One coat covering with greater color retention.
3. Unusual marproofness and adhesion.
4. Excellent appearance and ease of application.
5. More Sales Appeal for your product.
6. Can be baked under INFRA-RED equipment.

Available in White, Black, and colors. Baking schedules to suit your convenience. We will be glad to demonstrate.

THRESHER'S — High Standard Varnishes — MADE GOOD SINCE 1859

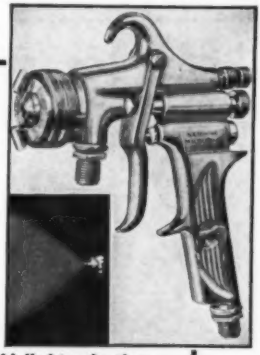
THE THRESHER VARNISH COMPANY
DAYTON, OHIO

PAINT—VARNISH—ENAMEL—LACQUER

★ *MILBURN FAMOUS "HOLLOW AIR" ATOMIZATION*

SUPERIOR FOR FINER FINISHES

The "Hollow Air" atomizes spraying materials with a minuteness heretofore not attained. Results in higher efficiency, speed, wider and wetter spray.



Construction has unique features — light, forged body of strongest aluminum alloy — stainless steel parts — removable threaded head and . . . . . **exclusive "Hollow Air" Atomization.**

Write for literature

The **ALEXANDER MILBURN** *Company*

Patents: No. 2,082,060; 2,082,061 2,126,888; 2,126,889

1402 W. BALTIMORE ST.
BALTIMORE, MARYLAND

SEA-LAC

perfected LACQUERS—ENAMELS—SYNTHETICS

Nothing that we say here is going to prove the quality of **"SEA-LAC"** Finishes to you . . . both of us know that.

There is just one way to find out how valuable **"SEA-LAC"** can be to you—in improving your finishing results—and in saving you time, labor and cost . . . It is to make an experimental finishing run with **"SEA-LAC"**—and compare it with the results of the material you are using now.

WRITE FOR FREE SAMPLES AND INFORMATION

DURALAC CHEMICAL CORPORATION
NEWARK, N. J.

SILK SCREEN METHODS of REPRODUCTION

Fully Illustrated by the Author. Leatherette Binding. Size 5x7½ in. 193 Pages. 98 Illus. **$3.00**

THIS new book is intended for Sign Painters, Card Writers, Display Men, Furniture Manufacturers, Novelty Manufacturers, Glass Etchers and For Domestic Use.

Every detail of the silk screen process is presented clearly in detail. All equipment is fully described and its use illustrated. All materials needed in the various kinds of silk screen work are mentioned with respect to their use to advantage. Estimates of costs and prices to charge are given.

Practical Publications, Inc.
222 East Ohio Street Indianapolis, Ind.

of recent development, and whether any changes from former conventional procedure have been made and which might be coincidental with the trouble. In the light of your statement that "at times [you] are not satisfied with the finished product," may I assume that your present procedure has never been entirely satisfactory?

There should be, in general, no reason why a shellac tumble would not be a satisfactory method of finishing your product. In my regretted total unfamiliarity with the solvent known as "Ponsolve," I cannot approve or condemn it. There are a number of shellac solvents on the market, many of which are composed of synthetic methanol (wood) alcohol and diluted or fortified variously with other things, mainly in the interest of cost reduction. Since methyl alcohol is the best known solvent for shellac, anything added to it can do nothing but detract from its excellent solvent action.

Unfortunately, methyl alcohol has acquired a sort of industrial black eye, due to its toxicity and it is the subject of much discrimination by various state industrial laws. The next best shellac solvent, therefore, is U. S. No. 1, special denatured, which is an ethyl alcohol with about 5% of a denaturant. This is mentioned merely to point out that unless one uses this alcohol, or a similar formula of a straight alcohol, he is not using the best solvent for the shellac, hence not allowing an ample margin of safety for shellac's behavior in critical operations.

You mention the "falling away" of the finish after it stands for some time. This condition is usu-

SUNBRITE

GOLD
COPPER
SILVER
ALUMINUM
BRONZES

More Mileage—More Savings

The Mitchell-Mayer Co.
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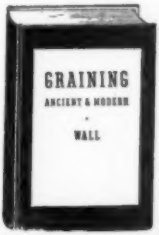

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ally the result of shrinkage in the film by the final emergencies of a slow element in the solvent or, as the chemists say. "a tail on" the evaporation of the solvent. Shellac has a high degree of solvent retention under exposure to some materials. In this case the trouble might not come from the shellac solvent at all, but from something introduced in the wax.

You do not state how long the shellac coat is dried before the wax tumble, nor what type of wax is used. I think that you don't allow enough time for your shellac finish to become entirely dry before wax-tumbling, and that the wax literally rubs some of it off, thus accounting for the specks you mention. It sounds as if you might be using a liquid or soft paste wax which, either because of insufficient dryness of the shellac or because of some active solvent in the wax itself, is attacking the shellac. The glossy appearance of your work when it leaves the tumbler, and its dulling later, leads me to believe that perhaps your shellac contains some volatile solvent which, on slow evaporation, lets the film down.

May I offer the following suggestions? Run you shellac tumble in your usual manner, but use only straight alcohol as a thinner. Allow the shellaced pieces to dry overnight in a free circulation of air before polishing them.

If you care to experiment, I have had considerable success in speeding up shellac tumbling operations by using a hollow shaft on the tumbler—a shaft made of pipe—and introducing a moderate blast of air into the barrel in the final stages of the tumble to carry away the solvent fumes and to speed up drying.

For polishing the thoroughly dried shellac coating, try nut-size lumps of pure carnauba wax, adding also to the tumbler a shovelful of small soft leather scraps and/or small dry clean pieces of fairly hard pressed felt. An even higher polish will be obtained if it is at all feasible to split this operation; that is, tumble the hangers with wax lumps; then remove the wax and polish the hangers by tumbling them with the leather scraps or felt pieces.

In the resume, I suggest that you check the quality of your shellac solvent, make sure of the thorough dryness of the work as the process progresses and polish with a very hard dry wax aided by some semi-soft rubbing agent to bring up the polish.—W. T. SMITH.

Specks on the finished pieces come from the shellac barrel, I believe. After a shellac barrel has been in use for some time, half-dried shellac builds up on the ends of the horizontal tumbler. This shellac breaks off and sticks to parts of the hangers. It usually leaves a dirty gummy bunch, sometimes ¼-in. in diameter. If this is the trouble, the barrel will have to be cleaned by scraping it and washing it with thinner or alcohol.

If the specks come from the wax barrel, it may be due to waxing before the shellac has dried sufficiently. Wax acts to retard drying, and when even a very small amount of alcohol is left to evaporate from the shellac, the finish will not harden if wax is applied.

I would suggest that you clean your tumbling barrels. Be sure the pieces to be finished are clean, and let your shellac dry several hours before applying the wax.—THOS. F. RICHARDSON.

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EDITORIAL

Trend in Furniture Styles

* Gauged by the exceedingly active business they are enjoying Chicago manufacturers have the assurance that their recent furniture interpretations carry strong approval, and so they plan to introduce further developments of these styles at the coming market. This means that Modern, Regency, and 18th Century themes, in the order named, will again be given the spotlight, with members of the Chicago Furniture Manufacturers Association creating many important new designs in them.

Modern is expected to make a splendid showing at the fall market, where buying emphasis often is placed on promotional and volume selling items. In its latest versions, Modern furniture will delineate simple, tailored lines, excellently scaled proportions, and moderately light finishes. Chicago exponents express ample confidence in the sure progress of contemporary designs, chiefly with an original American flavor, basing their conclusions on the spurt Modern has taken in recent months. It is pointed out that, with their basic simplicity, pieces now are fashioned to harmonize attractively with furniture of many other types. Included in the offerings for November will be a wide diversity of Modern—occasional furniture, upholstered pieces, dinette and breakfast sets, and bedroom suites.—T. WALLACH.

Six Machine Sandings for a Smooth Finish

You might not expect to find, in a factory making low-priced wood furniture, a valuable lesson in smoothing the surfaces preparatory to finishing, but I have seen just that. In a factory I visited recently the manager called my attention to the finish and then took me through the assembly department and machine room. Their case goods construction has no corner posts. Fronts, sides, backs, partitions and tops are machined and assembled in separate units of uniform thicknesses, which later are put together in assembly clamps.

All of these flat units of exposed

parts are put through two triple-drum sanders set in tandem, which gives each surface six oscillating drum sandings, each succeeding one with a finer grade of paper. As a result, the surfaces are remarkably smooth and free from any trace of scratches. Hand sanding, which is always costly, is entirely eliminated.

It is a case of the company recognizing the value of a smooth surface before thin finishing coats are applied—and then employing a type of design, construction and equipment which allows this smooth surface to be attained satisfactorily and economically.

Castor Oil Is New Paint Ingredient

Castor oil, the quick growing chemurgic crop once used only for medicinal and lubricating purposes, is now being adopted in greatly increased quantities by the paint industry to replace drying oils supplied by countries now at war or embargoed, according to a paper delivered by Dr. John C. Weaver of The Sherwin-Williams Co., at the Mid-American Chemurgic Conference held recently at Cleveland, Ohio. Present indications are that the 1940 use of castor oil will be twice as much as 1939.

The problems of the paint chemist in developing oils to replace those formerly imported from abroad were described by Dr. Weaver, who said that a new process of dehydration makes an excellent drying oil from the product of the castor bean. He stated that the wars caught the paint industry in a bad position, in that most farm-grown oils such as oiticia, perilla, and tung are either slow in development or not suited to the climatic conditions of continental United States, but that new castor plantings can produce a good crop of beans in a single year. Already American farm-production of castor beans is twice the output of two years ago, and expectations are that more than half of America's new castor oil needs will be grown on American farms in the near future.

Discussing the type of finishes now produced with castor oil, Dr. Weaver stated that clear coatings and enamels for refrigerators, cabinets, collapsible tubes, and many household products are now being made. The castor oil enamels dry faster than perilla or oiticia enamels, and have a far greater color retention and elasticity than finishes made with these two latter oils. Dr. Weaver also forecast the use of dehydrated castor oil in the production of house paint.

Shellac—Available and Improved

Despite the war, imported shellac is still available in undiminished quantities to its growing number of users; and prices, although considerably higher than in recent months, are low compared with former years.

It would indeed be ironical if the Indian shellac producers were cut off from their market just at the time that the concentrated research program of the past few years is in a position to bear fruit. Since the early 1930's three agencies, the Indian Lac Research Institute, the London Shellac Research Bureau and the U. S. Shellac Importers' Association, have devoted them-

selves, with a considerable degree of success, to the investigation and improvement of the properties of this unusual natural material.

Unique in its source, as well as in many of its properties, shellac is the flaked form of commercial lac, the resinous incrustation secreted by the scale insect *laccifer lacca Kerr* in British India. Shellac has long been used in surface coatings and was one of the first materials employed by the plastics molding industry. Indeed, the discovery of shellac's scratch-hardness, resiliency and low thermal expansion made possible the production of the first molded, flat-disc phonograph record. . . .

Progress has been made in the investigation of hard lac, which comprises about 65% of the original lac and appears to have most of lac's desirable properties. Hard lac is much harder and stronger than whole lac, higher-melting, more resistant to water, more nearly colorless, less corrosive to metals and sets more quickly on application of heat.

Commercial advances have also contributed to greater acceptance of shellac and there has been more dependable standardization of the different grades.—*Industrial Bulletin.*

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★ To give the best finish, from a sales-promoting standpoint, many firms are confronted with the necessity of making a small investment in order to produce the better finish, or to not make the small investment and to try to sell their product with a less attractive finish.

The hammered metal finish is an example of such a situation. Here is a finish that produces a truly beautiful appearance—and, in addition, it covers minor defects in the metal surface. However, to get the really attractive hammered effect it is necessary to have a

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spatter spray gun, which means an investment of $35 to $40. Many concerns have found that this investment paid. It is surprising, though, how many firms decide to save on the investment and try to sell a less attractive finish. Paraphrasing an old slogan, "millions for sales promotion, but not one cent for production."

Another place where it pays to invest is in proper baking equipment. A surprising number of firms, the sale of whose products depends upon an attractive appearance and a sustained good appearance in use, are still using air-dry finishes. This does not mean that baked finishes should be used universally, for they are not a cure-all. However, there are certain applications where nothing but a baked finish should be considered, if a quality and competitive finish is to be produced. Ovens are not cheap, but comparison of costs against improved salability will often show the desirability of an oven investment.—H. D.

Testing Company Changes Management

We are advised by Mr. O. K. Haun of 2222 N. 11th St., Philadelphia, Penna., that he has taken over the management of the Exposit Testing Co. of the same address. The company makes a practice of testing finishing materials for outside exposure.

Du Pont Appoints Sales Managers

Announcement of three new Sales Managers is made by the Finishes Division of E. I. du Pont de Nemours & Co. J. L. Masterson, formerly Western Refinish Sales Manager located in Chicago, has been appointed Regional Manager of a newly organized Southwestern sales office in Dallas, Texas. H. R. Lounsbury, formerly manager of Eastern Refinish Sales, has replaced Mr. Masterson in Chicago. G. F. Baldwin, formerly manager of Refinish Sales in the Southwest, has been made manager of Refinish Sales in the Eastern Territory with headquarters at Philadelphia.

Mr. Masterson has been associated with the Du Pont Co. 15 years. He served four years as advertising manager of the Finishes Division and was then promoted to be Eastern Manager of Refinish Sales with headquarters at Parlin, N. J. During the past nine years, Mr. Masterson has been Western Manager of Refinish Sales with headquarters at Chicago.

Mr. Lounsbury has been with the Du Pont Co. 16 years, spending five years at Parlin and Detroit as office manager of the Automotive sales offices and then being transferred to Washington, D. C., as manager of Duco, Inc. During the past eight years he has been Eastern Manager of Refinish Sales in Philadelphia.

Mr. Baldwin joined the Du Pont Co. in 1923 and served as assistant advertising manager of the former Chemical Products Division. In 1928 he became advertising manager of Refinish Sales with headquarters at Detroit. He was transferred to Dallas in 1932 as manager of Southwestern Refinish Sales.

The Dallas office, previously a branch of the southern headquarters located in Atlanta, has now become the headquarters of the southwestern territory.

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DeFoe Company Finds Modernization Profitable

(Continued from page 17)

sprays another side, and so on until the finishing is complete.

For handling products on which two or more colors are used, De Foe facilities include a smaller spray booth of conventional design except that it includes another short conveyor equipped with "heads" on which the product rests as it moves automatically past the sprayer at work-bench height. These heads spin around horizontally so that, after masks are adjusted, the operator can readily reach all parts of the object calling for the extra colors. The conveyor extends beyond the booth walls on either side, which permits loading and unloading by a helper outside the spray zone.

Naturally, Mr. De Foe is enthusiastic about the new finishing equipment.

"In the first place," he declares, "production has speeded up so tremendously that we can render faster service for our customers and deliver a higher quality job. The entire new system provides greater flexibility with definite certainty of uniform results. Scratching or abrasion is practically eliminated; we can handle a greater variety of objects, give them any finish demanded, and guarantee that the job will be as perfect as it is possible to obtain anywhere."

The company had been contemplating the modernization program a long time, he said, and was finally impelled to start the improvements because of the immense increase in business which has come with the general betterment of economic conditions.

"The new business which has been steadily coming to us," he said, "reflects, we believe, the efforts manufacturers are making everywhere to add 'eye appeal' to their products. They are finding that beauty in design, coupled with striking color effects, is an important help in meeting competition and that a quality finish insures more sales and higher profits.

"Uptodate equipment, such as the company has developed for us, makes possible a quality finishing job. This mechanical development has been an influential factor in encouraging the trend to beautification of commercial products and, at the same time, by lowering production costs, the manufacturer is finding the market for his improved product greatly widened.

"Our new equipment represents

the very latest obtainable facilities for satisfying the new demands, and we are now in position to lead the procession in the industrial finishing field."

Letters from I. F. Readers

(Continued from page 10)

stain room to rubbing department. I began to get a little discouraged. Apparently there was no chance for advancement because it had always been the company's policy, when they needed a new foreman finisher, to bring in a man from out of the state—instead of looking in their own plant among the men who had served them well for years. In 8½ years, I have seen four foremen finishers come here—three from Michigan and one from North Carolina.

The finisher that is here now is a Grand Rapids man, and it was through him that I was fired with the ambition to become a foreman finisher in my own right. He took an interest in me, when he saw that I was really eager to improve myself, and agreed to teach me all he knew about finishing. For two years under his coaching I worked diligently, learning to match colors, the art of glazing, and all the secrets that go to make up the repertory of the veteran finisher.

But although a finisher in my own right, and feeling myself capable of running a finishing department, I am still not a foreman finisher. Probably this is largely due to the fact that the majority of plant managers lack confidence in a young man who has not had the actual experience of running a finishing department on his own.

This is understandable from their point of view, inasmuch as we all know that the finish is what sells the product—in most instances; but the conditions herein described offer small inducement to young men to spend years learning the art of finishing and then find the doors locked against them when they are eager to put their knowledge to practical use.—R. H. B.

Infra-Red Baking

We are interested in infra-red baking equipment and would like to learn some more about such systems.

Being since many years subscribers to INDUSTRIAL FINISHING, we take the liberty to write to you in the matter.

We should be much obliged if you would give us all the information you can regarding the infra-red baking systems, such as lamp installations, finishes available, suitable suppliers in the line, etc.—H. V. A., Huskvarna, Sweden.

Information supplied.—ED.

Interested in Writers

In your Sept. issue of INDUSTRIAL FINISHING there is an article on "The Cleaning and Spray Finishing of Metal Parts" by Michael Forchione. We would like some further information in regard to this article and would appreciate receiving from you the ad-

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dress of the author so that we may correspond with him.—E. Mfg. Co. (Electrical Specialties).

The Oct. issue of INDUSTRIAL FINISHING contains an article entitled, "Decoration of Chairs by Masking" by Septimus Booth. Will you supply us with Mr. Booth's address and the name of the company where these chairs are being finished?—M. F. Co. (Advertising).

Plastic Furniture Shown

At the November home furnishings market at the American Furniture Mart, a new correlated group of "Plastyle" furniture is shown in which a new plastic material, known as "Plastaloid" is used to fashion a related group of bedroom, dining room, living room and juvenile furniture.

Combining the new substance, which is a laminated plastic material, in some instances with wood, in others with fabrics and metals, the new group, which is modern in design, encompasses bedroom and dining room suites as well as upholstered living room furniture, occasional pieces, lamps, cedar chests, juvenile furniture and pianos. The new material is available in a wide range of pastel colors. It is of the phenol-formaldehyde-urea type, produced under pressure of 1500-lbs. per square inch at 270°F.

In appearance, the new "Plastaloid" has a textured design which is original and distinctive. It does not imitate wood or marble and can be finished either in a high gloss or dull satin. Comfortable to touch, the "Plastaloid" takes on room temperature and feels like highly finished wood.

Solvents Recovery Appoints Al. Crane

The Solvents Recovery Service, Inc., of Newark, N. J., announces the appointment of the A. B. C. Chemical Co. of Waterbury, Conn., as its authorized agent throughout Connecticut, Rhode Island, and southern Massachusetts.

Mr. A. B. Crane, known as "Al" to his many friends in the metal finishing industry, heads the A. B. C. Chemical Co. In making this connection with Solvents Recovery Service, Mr. Crane declares that he believes he is offering a real service to the industry, for it has been proved that the reclaiming of solvents and thinners from sludge, waste, wash, spoiled lacquers, etc., by the well-known Lofgren Process, offers a real saving to the users of such materials.

Mr. A. B. Crane of A. B. C. Chemical Co., which has been appointed to represent the Solvents Recovery Service, Inc., in Conn., R. I. and Southern Mass.

Johnson & Son Appoint N. H. Voigt

S. C. Johnson & Son, Inc., Racine, Wis., makers of Johnson's Wax, announce the appointment of Mr. Norman H. Voigt to direct the activities of their new Color and Process Studio, associated with the Industrial Division, in order better to serve users of industrial finishes for product finishing.

Mr. Voigt is widely known in the furniture industry for his ability to create refreshing modern and correct period color effects. His services will be available to present and prospective users of Johnson's finishes for color counsel and process advice.

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The author has actually been doing this work for others for many years and he knows whereof he speaks. No one has ever gone into the subject of metal finishing more deeply than he nor has the subject ever been explained so clearly and effectively. This book was eight years in preparation.

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Published Monthly in the Interest of Modern Production Finishing

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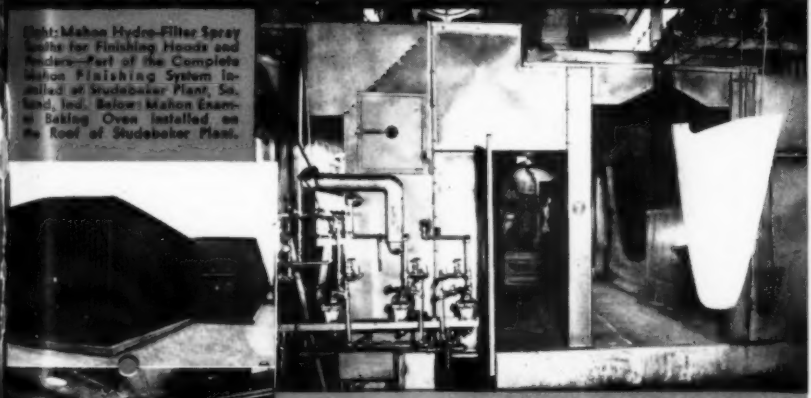
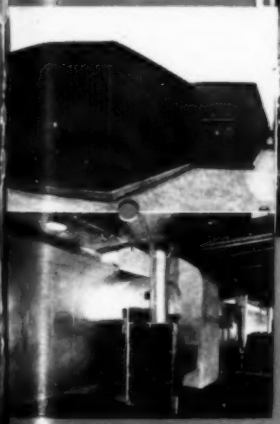


Right: Mahon Hydro-Filter Spray Booths for Finishing Hoods and Fenders—Part of the Complete Mahon Finishing System Installed at Studebaker Plant, Sa. Bend, Ind. Below: Mahon Enamel Baking Oven Installed on the Roof of Studebaker Plant.



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